

MOTOR AGE

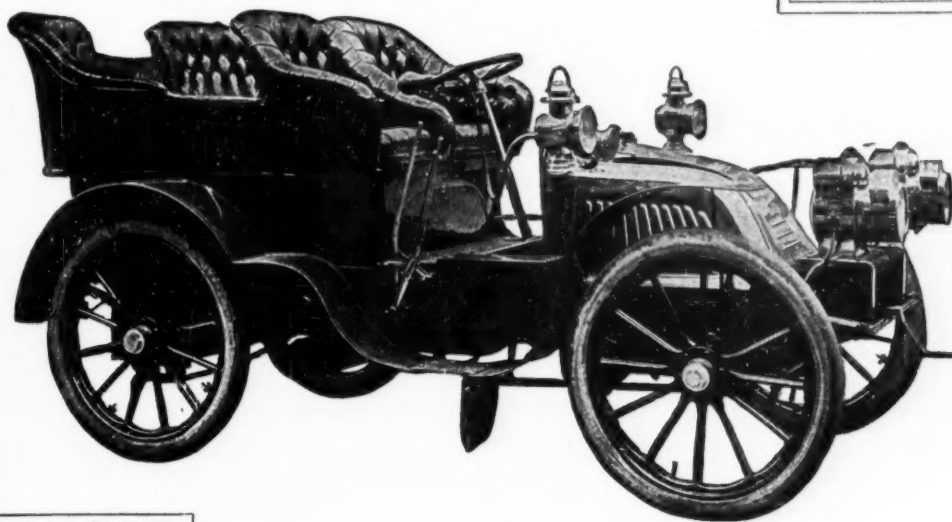
Vol. 3 No. 19

MAY 7, 1903

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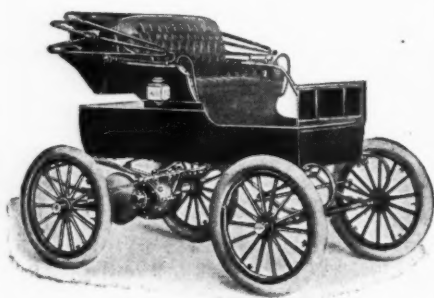
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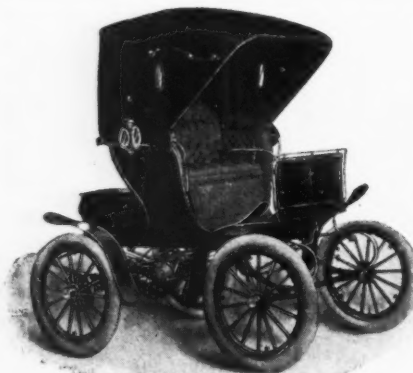
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Choice of physicians and others wishing ease of entering and alighting.



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For style it is in a class apart from all others. Massive, substantial, luxurious.



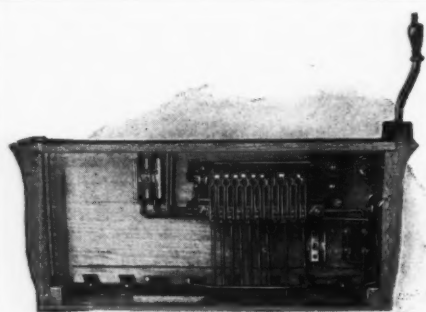
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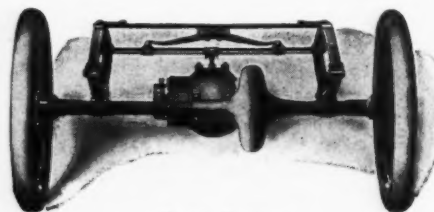
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This is our four-passenger vehicle. Practical for either two or four persons. Meets the demand for a convertible two or four passenger Auto.



Controller

This one lever starts, stops and reverses a National; gives four speeds in either direction. No grease nor gears. A child can operate it with ease and perfect safety.



Rear System

No Chain No Noise
No Vapor No Odor
No Vibration

Just an electric motor and axle, all inclosed and extremely simple, all motion rotary. Always under complete control, safer in fact than a family horse.



Front System

When you see these springs you know it's a National. Strength, comfort and beauty are combined in this part. Examine both front and rear systems of the National before you invest.

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NATIONAL MOTOR VEHICLE COMPANY

2100 East Twenty-second Street,

INDIANAPOLIS, INDIANA

MOTOR AGE

VOL. III. NO. 19.

MAY 7, 1903.

\$2.00 Per Year

AUTOMOBILING AND SIGHT SEEING THE SAME THING IN LOS ANGELES

IN many ways Los Angeles, Cal., is an ideal automobile town. There is no speed ordinance but the old bicycle rules, which are supposed to apply to automobiles. It is a common occurrence to see automobiles running on all the business streets at 15 to 25 miles an hour while on the residence streets they fly along at even a 30-mile gait.

This lack of a speed limit renders it handy in sight seeing to use automobiles, and the line of wagonettes used for "seeing Los Angeles," as well as the big electrics and a 1902 Winton operated by a local garage are flashing about the city from landmark to curiosity at a speed that would not be allowed in the east.

Los Angeles is a hustling city and many business streets are as crowded and as full of



Along Figueroa Street

by points and two Waverley tallyhos and two Waverley brakes were put into commission. There was a good demand for the service but by poor management and incapable drivers the service became unprofitable and the batteries were all but ruined.

The trip out to Baldwin's ranch, some 20 miles, taking in the ostrich farm, the Pasadena, San Gabriel mission and other famous sights on the way, was done regularly, the heavy electrics taking nine passengers and some luggage right through the heavy sand and over big grades. One of the illustrations shows one of the electric tallyhos standing in front of a typical tourist hotel.

The present owners of the electric automobile stable are having the big rigs fitted with



On a Palmy Avenue in Park System



Coming out of Third Street Tunnel



On Palm Drive

flying humanity as the streets of busy Chicago—the daily victim of the deadly trolley shows this to be the fact.

The wagonettes are Mobiles carrying about ten people each and they were put into use about 3 months ago by the local branch of the Mobile Co. of America. For several weeks they were collectively known as Tanner's Mobile Wagonette Line, leaving the corner of Second and Spring streets at 9 and 10:30 a. m. and 1:30, 3 and 4:30 p. m. The line is now operated in connection with the observation trolley cars. "Seeing Los Angeles" by car costs tourists 50 cents, and by automobile a dollar.

Two years ago when the Electric Automobile Livery was established by S. L. Hall of Kansas City, its prime object was to run a line of electric carriages about the city and to near-



MOTOR AGE

Passing Women's Club House

gasoline motor made in the local automobile factory and will again put them into service.

The steam wagonette line has a regular circuit over which it runs five times a day, leaving regularly at appointed hours from a tourist headquarters opposite the Angelus hotel, also calling at its former headquarters at Tanner's drug store. Among the points of interest visited are Chinatown, a district almost as interesting as San Francisco's Chinese quarter.

To reach Chinatown the wagonettes take the tourists through the business center and the wholesale district, passing, of course, some of the early landmarks, notably the old adobe and stone church on the ancient Plaza at the western limit of Chinatown. The parks are always attractive points. The view in West-



Mid Wild Palms

lake, shown in one of the illustrations, gives an idea of the tropical vegetation and the water-scapes.

The residence part of Los Angeles is particularly pleasing as the boom in home building and in adapting the old mission style of architecture, combined with tropical trees and flowers, club buildings, and other rare sights, make this part of the ride to many the most interesting. Then there are the oil fields, which almost touch Westlake park and even fringe the northwest side of the residence portion. Probably no other city can offer so many strange and interesting sights from an automobile seat and surely no other city will allow so much ground to be covered so quickly, so, naturally—surely the wagonette line of Mobiles has a right to be well patronized.

In addition to the "seeing Los Angeles" automobiles, several touring cars are also used for taking out parties regularly. The Electric Auto Livery keeps a 1902 Winton touring car busy, charging \$3 an hour, with driver furnished, of course. The local Packard agent also sends out a 1902 Packard touring car, with driver, at a rental of \$25 a day.

Arrangements are being made for taking parties over adjoining country in gasoline cars regularly. The charge will be \$25 a day.

In the Mud on Temple Road



In Pasadena a Peerless car and several light cars have been rented out at about \$25 a day regularly during the tourist season just ending. A Northern was frequently rented without driver for \$25 a day. There is a Mobile wagonette in Pasadena that is kept busy taking parties out to the old mission and was for a while chartered by one of the tourist hotels to carry guests from its cottages to its main hostelry.

Altogether both automobiling and sightseeing profit by the method in which the two have been so closely yoked in this garden plot on the Pacific coast.

OLDSMOBILES SCOOP EVERYTHING

LOS ANGELES, April 27—Last Saturday was good roads day in Cahuenga valley, which lies 10 miles to the west of this city. A 100-foot boulevard is being built from the center of Los Angeles to Hollywood, the principal town of the Cahuenga valley, and in honor of the city's beginning this work, the celebration was held. Aside from the usual speech making



Seeing Los Angeles in an Electric Brake

by city officials and prominent citizens and the serving of light refreshments, the main features were a half-mile automobile race and a hill climbing contest.

All owners of automobiles in this city and Pasadena, as well as of near-by towns, were invited to be present. Although the weather was cloudy and rain threatened, there was a good attendance of automobile users, who were loud in praise of the broad new boulevards. These avenues are miles in length and several reach into the edge of Los Angeles. They are covered with rotten granite of a reddish color and the surface is smooth and hard, while the wide road bed renders speeding a constant temptation.

The hill climbing event was over the course up the side of Whitley Heights. The grade averaged 22 per cent and the distance was 250 yards. Although there were many makes present only Oldsmobile drivers would enter the actual contests. A Rambler and a Knox entered showed up later in the day, but other contestants backed out.



MOTOR AGE

Westlake Park

L. T. Shettler, of the Oldsmobile Co. of Los Angeles made the best time, covering the 250 yards in 1:16. F. E. Hughes was second in 1:31, and H. M. Hanshue, third, in 1:38. M. L. Swift of Chicago also tried the hill in his Olds and made fourth best time.

Later in the day both the Rambler and a Knox climbed this grade in good shape, one of them faster than any of the Olds.

Immediately after the hill-climbing contest the half-mile dash was run on Prospect avenue, west of the hotel lawn where a large crowd had gathered. Down the wide avenue automobiles and carriages were lined up. Each contestant was allowed two trials against time as the course was not considered safe for several machines in a race.

In the first trials L. T. Shettler made the half mile with a stripped Oldsmobile in 57 seconds. Warren Carhart of Burbank next went over the course with his Winton, his time being 1:09. J. W. Pearson in a Knox made 1:08 on his first trial. On second trial Shettler came down the avenue at a 35-mile gait, but lost speed in several soft spots on the course. His time was 53.3-5 seconds, the best time of the day. Carhart's time on the second trial was 1:03 and Pierson's 1:06.

On a Los Angeles Park Road



A. C. A. SUSTAINS DIGNITY AND HONOR

At Special Meeting Called to Act Upon the Obnoxious Bailey Bill and Upon President Shattuck's Assumptive Pledging of the Club's Support of It the Members Manage to Get From Under All Unpleasantness

New York, May 3—The fight in the Automobile Club of America over the Bailey bill compromise, to which President Shattuck and the law committee had pledged it, had its culmination at a special meeting of the club last evening called at the request of the necessary fifteen members at large.

There were over a hundred members in attendance, who constituted a representative gathering of all the elements that go to make up the membership of the big club. President Shattuck very properly and with creditable courage postponed his sailing for Europe, scheduled for last Saturday, to be present and preside. The governors, at a preliminary conference, with commendable common sense set aside the star chamber precedents hitherto in vogue as a part of the Shattuckian policy and on the ground that the bill, its discussion and the action thereon by a representative club were a matter of legitimate public interest, admitted the press.

COURAGE, DIPLOMACY AND HONOR

The final action taken was unanimous and will go far toward restoring the prestige of the club as a representative automobiling organization. Courage was shown in a frank denunciation of the bill; diplomacy in a vote of confidence in the president and law committee on the theory that they had honestly done the best they could, and honor in the observance of the pledge that had been put upon the club as a result of the negotiations with the Long Island Highway Protective Association by declining to make an appearance before the governor in opposition to a measure accepted by its representatives.

All the warring elements expressed themselves as satisfied that the solution was the best that could have been devised to escape from the nasty predicament into which the ill-advised acceptance of an unreasonable bill and the perplexing pledge of the club's acceptance of it had placed all hands. The denunciation of the bill placed the club at large on record, and satisfied the opponents of the measure. The you-did-the-best-you-knew-how vote of confidence preserved harmony and poured balm on the wound of the throw down given the president and the committee; while the refusal to make formal objection before the governor insured the eligibility of future committees of the club to take part in legislative negotiations.

AMENDED RESOLUTIONS

The original resolutions offered by Percy Owen, the leader of the revolt, were preceded by the following preamble:

"Whereas, The sentiment of the club is strongly opposed to the Doughty-Bailey bill now pending before Governor Odell, and

"Whereas, The bill is a measure most prejudicial to the interests of the automobilists of the state of New York."

A "resolved" followed to the effect that therefore the club send a committee to the hearing at Albany to urge Governor Odell to veto the bill.

It was here that William C. Whitney, ex-secretary of the navy—whose masterly analysis of the compromise bill accepted had riddled

the arguments of its defenders and established an unanimous realization of its pernicious provisions—appeared as a peacemaker and a diplomat as well. He offered the following amendment to the "resolved" paragraph, which Mr. Owen promptly accepted, and which was adopted unanimously.

"Resolved, That in view of the attitude which the club has heretofore taken upon the subject no appearance be made by the club before the governor with regard to the bill."

Before the presentation and adoption of these resolutions when Mr. Whitney had won his victory without doubt and the bird of peace had begun to ruffle his plumage preparatory to spreading his wings over the hitherto warring multitude, A. H. Whiting of the insurgent band had offered a vote of confidence in the president and law committee which the rebels with victory in sight magnanimously permitted to be passed unanimously.

PRELIMINARY SPARRING

Proceedings began by President Shattuck's amending the governors' decision as to the admission of the press followed by a formal statement of the request for the call and an explanation that the Bailey bill was a compromise measure accepted by the law committee.

Henry Rogers Winthrop, chairman of the law committee, stated how the bill had been left to Mr. Shattuck and Judge Church to handle and that their action had his approval.

The members of the club had received on Friday a brief from the law committee setting forth the advantages of the Bailey bill and explaining away some of its alleged disadvantages.

DEFENDING THE BILL

Judge Church, who declared himself largely responsible for the acceptance of the bill, spoke in defense of it and in elaboration of the arguments set forth in the brief. Judge Church asked the members to put themselves in the places of the committee. The Long Island Highway Protective Association was an organization of wealthy men of Nassau county, which existed solely for the purpose of crippling the accepted speed of automobiles. It had a very large roll and was thoroughly entrenched. The bill the Long Islanders had drafted contained many drastic measures. The feeling at Albany was so strong against automobilists that the law committee deemed it better policy to seek a compromise than put up a useless fight. In the end the compromise was brought about and the representatives of both sides put their signatures to it. He confessed the bill was not an ideal bill, but it was the best they could obtain and far better than the one the Long Islanders would probably have succeeded in putting through. Judge Church took up the points of the brief in detail. The final action of the meeting held the points not well taken.

One point the judge made, however, scored a hit and that was the provision of the bill permitting county supervisors to set aside a section of the road for such speed tests as might be deemed necessary. This, said Judge Church, was to provide for the running of the

international cup race in New York state next year in the event of the American team's winning the Gordon Bennett trophy. The suggestion was received with applause. "It is impossible to picture to you the situation at Albany," said Judge Church in conclusion. "If we had tried to fight them with brute force and lost you would have said 'Why didn't you compromise?' We modified the drastic provisions and that was the best we could do under the circumstances."

PLEGGED WITHOUT AUTHORITY

Perry Owen was next recognized by the chair and asked permission to have a letter read from W. D. Guthrie, a lawyer and member of the club, which was granted.

After expressing his regrets at being unable to attend the meeting his letter continued in part and substance as follows:

"This question affects a great sport and a great industry. Those who favor the bill say it was the best that could be obtained. We should, however, analyze its effects. If it will injure the sport and threatens the prosperity and permanency of automobiling nothing should keep this club from saying so. We are discussing a public question. There was no authority for any committee to bind the club.

"There is no reason why the club should not say a mistake has been made and withhold its approval of the bill. The injury lies in the fact that it was passed because the Automobile Club of America was declared to have approved of it. Only the president and one member of the law committee attended the conference. Why was there not a public hearing? Judge Church says the bill is on the whole all right. I have studied the law and am a lawyer and I disagree with him. He says there is no restriction of speed unless an ordinance is passed.

"There is a clause of the penal code, though, and it will hold good unless an ordinance is passed raising the 8-mile and the 20-mile limits. Posts set a half mile each side of a post office would mean a mile altogether. The extension of the posts is left entirely to the judgment of the authorities and the courts would not dispute their judgment. They will extend every limit and busy bodies will compel them to close in every highway.

"Judge Church makes the astounding statement that the provision as to passing a vehicle means 8 miles an hour in excess of the speed at which the other vehicle is going. As a matter of fact you could not pass a vehicle going at 8 miles an hour in the same direction without committing a criminal offense.

"Imprison a man on a third offense? Why, a man couldn't drive an automobile a week without being arrested three times. And then they propose to take away a mechanic's license and means of livelihood on a fourth conviction. I have studied the laws of other countries and states and can find none so unfair as this one."

W. W. Niles, of the law committee, argued that it would be bad faith to throw down the committee and urged that it be upheld as a matter of preserving the pledge that had been given.

URGES CONSERVATISM

William C. Whitney was next recognized. The former secretary of the navy and veteran American sportsman was listened to with deep attention. The dignity of his mien was impressive and his oratory earnest in its conviction. Before entering the field of politics and later the realm of finance Mr. Whitney was

THE GORDON BENNETT CUP RACERS

AMERICAN TEAM

COLOR—RED

ALEXANDER WINTON . . . Winton Car
 PERCY OWEN . . . Winton Car
 LOUIS P. MOOERS . . . Peerless Car

FRENCH TEAM

COLOR—BLUE

RENE de KNYFF . . . Panhard Car
 MAURICE FARMAN . . . Panhard Car
 HENRI FOURNIER . . . Mors Car

ENGLISH TEAM

COLOR—GREEN

S. F. EDGE . . . Napier Car
 CHARLES JARROTT . . . Napier Car
 J. W. STOCKS . . . Napier Car

GERMAN TEAM

COLOR—WHITE

BARON de CATERS . . . Mercedes Car
 DEGRAIS . . . Mercedes Car
 HIERONYMUS . . . Mercedes Car

known as one of the great lawyers of the land. He said in part and in substance:

"I am sorry the issue has been framed as it is. I know what a thankless position that of the president is and how earnest and sincere have been his efforts for the sport. If it be a question of a vote of confidence I will support it, if that be the issue; but I do not think it is. I authorized my name to be signed to the request for this meeting to be called, as I believed there should be a full attendance to discuss such an important question as the proposed law. I have since then taken up and examined the law. I disagree entirely with the view Judge Church takes of it. I will join with those who will not own an automobile under the statute. I will endorse our officers, but not until I have given my views on this bill.

"It may repeal the Cocks law but the penal code is still in force calling for 8 miles an hour in cities and 20 miles in the country. Suppose no ordinances are passed increasing this limit, what becomes of the advantages you are told you have gained? The concessions that have been gained are not in the form of relieving us at all and practically raising the speed limit as has been claimed by Judge Church. This does not happen unless we have new ordinances.

"The suggestion that we gain anything at all is not correct. Look at the clauses imposing additional restrictions on us. This law will in effect reduce our speed to 8 miles an hour; for spotters can spot you on the highway anywhere passing vehicles and pedestrians at a greater speed than 8 miles an hour. How far can the local authorities extend their sign limits? That is plainly left to their discretion and their judgment as to what they consider built up sections and the courts will not curb them in the execution of this discretion.

"The vicious part of this bill is that it makes a violation of any of its provisions a criminal act. If your lights go out at night and you proceed you are a criminal. If you break any one of the rules that the local authorities may make you are a criminal. There is not the like of this law on the statute books in viciousness. We are put among the criminal classes. Common councils can pass what laws they please and make us criminals if we violate them, and that is why I don't want to own an automobile if this law goes on the statute books."

H. S. Chapin said that the way out of the difficulty was to make a test case.

Colgate Hoyt replied: "I am a test case. I live in Nassau county. If this law committee lived in Nassau county it would not have so much hope of being treated fairly by the local authorities. If the Doughty-Bailey bill were the law now I'd be in jail this minute, for I've been arrested four times already. They timed me an eighth of a mile in 16 seconds when I was riding behind a boy jogging along on horseback and arrested me. The next time I had my children on my machine and was going along carefully, yet again I made that eighth in 16 seconds and was arrested. The next time we approached that trap we slowed down, but we made the eighth in 16 seconds just the same and were arrested. The next morning I drove my machine down past the trap to pay my fine. As I was leaving the court a breathless constable rushed up with a watch and said I had done the eighth that time in 15 seconds and I paid another fine. The justice, by the way, is a carriage maker. Do you wonder I have come down here to oppose the club's endorsement of the Bailey bill?"

BY NEGATIVE ACTION

James B. Dill told how in getting the New Jersey bill through they had got the clubs to endorse all the provisions they wanted killed and the game had worked all right. Mr. Dill suggested the same game being played by the A. C. A. in this case.

Winthrop E. Scarritt was by no means satisfied with the bill, but pictured the predicament in which the law committee found itself, and asked that their action be not discredited.

DEALERS TO URGE VETO

New York, May 1—Twenty-seven local concerns were represented at the meeting of the New York Automobile Trade Association this evening, at which President Percy Owen presided. Consideration of the Bailey bill was the most important business in hand. The sentiment against it was so unanimous that the following resolutions were promptly passed without a dissenting voice, following short speeches by C. R. Mabley, G. B. Adams, Benjamin Hayes and Mr. Andready:

Whereas, The bill passed by the legislature of the state of New York recently in session known as the Doughty-Bailey bill was carefully considered by this association,

And whereas, It appears that the bill is opposed by the automobile clubs, dealers and users in general.

And whereas, The automobile industry in New York city has already suffered serious losses by the mere possibility of the enactment of the said law.

And whereas, The passage of the said bill was largely induced by the mistaken belief that it was acceptable to the automobile interests of the state at large as represented by certain committees.

And whereas, No committee of any club or organization could fairly represent the sentiment of automobilists in general.

Now, therefore, be it resolved—That it is our unanimous opinion that the bill in question is most harmful in its provisions and would work untold injury to the automobile industry, thereby jeopardizing the employment of over 150,000 men now engaged in said industry in this country.

That we appoint a committee to appear before his excellency the governor on May 6, 1903, at the city of Albany to enter our vigorous protest against the enactment of this measure, urging him to exercise his veto power to prevent this bill becoming a law, and that a copy hereof be transmitted by the secretary to his excellency the governor.

N. A. A. M. AT ALBANY

New York, May 6.—[Special Telegram]—At the special meeting of the N. A. A. M. yesterday a resolution was passed to the effect that in view of the general impression that they had been represented at Albany by the Automobile Club of America, it should be put on record that the N. A. A. M. had not been represented by anyone nor consulted in any way in connection with the bill before it was passed. President Budlong and Messrs. Owen and Clifton, with counsel, represent the association at the hearing before the governor today.

The proposed use of demonstration cars at the St. Louis Exposition was also discussed, but no action taken, it being desired to secure further opinions from members.

The technical committee was instructed to submit suggestions for the holding of a mammoth contest of some sort this summer.

OTHER CLUBS TO ACT

New York, May 3—The Long Island Automobile Club delayed making public the action of its executive committee at last Wednesday's meeting on the Bailey bill until the Automobile Club of America had had a chance to take a stand on the question. The Brooklyn club strongly denounced the bill and notified Governor Odell of its action.

MORE INTERVIEWS WITH DAILY PAPER EDITORS

"Marse Henry" Watterson of the Courier-Journal, of Louisville, Ky., is optimistic on the automobile question and has great faith in the future of the motor vehicle. He says:

"While the automobile in America is yet in the early stages of development, it is no longer a doubtful experiment. Its practicability has been demonstrated, and there is full assurance now that it is to have an important and permanent part both in doing the work and ministering to the pleasure of mankind.

"It has been only in the last 2 or 3 years that American mechanics have turned themselves seriously to the evolution of a satisfactory motor carriage, and the progress they have made is such that this spring the American demand for machines of tested merit is greater than the manufacturers are able to supply. We are still behind France and Germany in the development of this industry, but France and Germany had a good many years the start of us. In France the business of building automobiles is a very large one, employing nearly 200,000 men and the exports of machines alone last year amounted to more than \$5,000,000. Ultimately American mechanics will not maintain their record if they do not prove their superiority to the Europeans in this branch of craftsmanship, as they have proved it in so many others.

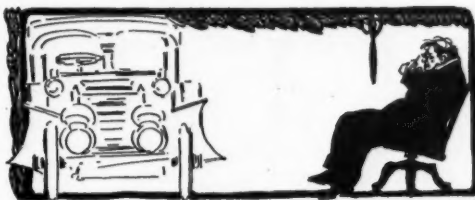
"Meantime, the automobilist here is still something of a pioneer, confronted by some of the prejudices which most pioneers find it necessary to overcome. One of the purposes of the Louisville Automobile Club is to see that automobilists not only recognize those prejudices, but by the utmost care in the management of their machines shall do everything possible to remove such prejudices. It will not be long, as automobiles with careful drivers increase, before horses will take as little notice of an automobile as they now take of a bicycle. That time will be hastened if the drivers of horses will co-operate with the club, one of the best methods of doing which is not to become nervous themselves when they see an automobile coming toward them. There would be fewer frightened horses if their drivers were not first frightened."

RESTRICT THE RECKLESS

The editor of the Press, of Pittsburg, Pa., says:

"The ordinances regulating the running of automobiles on city streets and boulevards is one which the public will heartily commend. There is unlimited need for legislation of such a sort as this in Pittsburg. It is already in force in practically every other large city of the country, although in other cities, as a rule, there are wider streets and the sport of automobilism is no more extensively followed than here. It might be thought in some quarters that it could be left to the judgment of the owners of automobiles to determine when they were running them at a dangerous rate of speed. It might be left to the judgment of some automobilists. There are many of them who would never transgress the limit of prudent, orderly running of the machines along public thoroughfares. But on the other hand there is always a certain number of reckless persons, wholly inconsiderate of the rights of others, and who will outrageously abuse any recreation of the kind.

"The bicycle scorcher had to be put under restraint all over the country, and the automobile scorcher needs it just as much. If any-



thing, he is the more dangerous character, as the peril to pedestrians and drivers of horses from a bicycle running amuck is not to be compared with that to which they are exposed by the automobile. Men who ought to know better have been seen repeatedly running their machines along populous city streets at railroad speed. A sharp curb on fellows of this stamp is desired by the sensible class of automobilists as well as by the public. The ordinance should be passed without formidable objection from any quarter. And then, after it has been passed, the police should see that it is strictly and unflinchingly enforced."

CO-OPERATION WITH OFFICIALS

The Republican, of Denver, Col., says:

"Denver has been remarkably fortunate in its comparative freedom from automobile accidents, despite the fact that the sport is very popular in this city. This is a high tribute to the carefulness and consideration of Denver automobilists. To their credit it is to be said that very few complaints of reckless driving have been heard. But the authorities have wisely determined to put a stop to the first exhibitions of undue speed this spring, feeling that a few salutary examples at this time of year will stop any growing carelessness in the summer months.

"Operators of automobiles owe it to themselves and to the public to co-operate with the authorities in suppressing any attempts at speeding in the public streets. Every operator has a fair idea of what constitutes a reasonable rate of speed, particularly in crowded districts, and this judgment should be exercised. The efforts to impress all automobilists with the importance of caution and care should be heartily seconded by every operator."

Through a Mountain Torrent



cut in the mountain is 70 feet deep. The fording scene shows Mr. Shettler crossing one of those mountain streams which exist only after unusual rainy seasons. The water is 2 feet deep, the stream 100 yards wide and the current 12 miles an hour. The scene of these stunts is in the Fernando mountains, 23 miles north of Los Angeles, from whence good roads lead to it.



San Fernando Side of Pass



Shettler Climbing the Pass

A. M. Hopkins, managing editor of the Post, of Cincinnati, O.: "I thoroughly believe in the future of the automobile. I do not think it is a fad and I am convinced that the time will come when automobiles will be cheap enough so that those who are in moderate circumstances can own them. The commercial automobile already means much to business and will mean more. It not only saves the expense of horse flesh, but, viewed from a humane standpoint, the commercial automobile is a world need. I am also a believer in automobile racing, just as I believe in any clean sport. As far as automobile regulations are concerned, they should be on broad lines and of a nature not to discourage the use of this modern vehicle."

LONG SCOTCH CONTEST

In the non-stop trial which is to take place May 13 and 14 from Glasgow to London under the auspices of the Scottish Automobile Club, there are twenty-five entries. The run is about 4400 miles and will be practically continuous as the cars are not to be touched except under penalty. A night's rest will be taken at Leeds. The cars range from 6½ to 30-horsepower. One woman is entered in the trial.

CLIMBS FREMONT PASS

The illustration depicts a trip made a short time ago up Fremont Pass, in southern California, by Leon Shettler, of the Oldsmobile Co. of Los Angeles. The pass is one cut by General Fremont for taking his cannons over the mountains, and is said to be one of the most difficult passes in the state. It is claimed that the last ½-mile averages 30 per cent while all of the last ¼-mile is over 20 per cent grade. At some places the grade is even steeper. The

MOTOR AGE

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LOCAL DEALERS' ASSOCIATIONS

Boston and New York have full fledged associations of automobile dealers.

There are organizations in other cities which are almost the same thing, being outgrowths of old cycle trade associations.

There is a possibility of the formation of an association in Chicago.

There are some who look upon such organizations as unnecessary in the present youthful and exceedingly healthy stage of the automobile trade; who view local trade associations as affairs chiefly useful in stimulating and maintaining a less vigorous trade that is past its zenith, such as the bicycle business.

There are, however, in the automobile retail trade many problems which can be better handled by organizations than by individuals, and while a local trade association may not be necessary in any city to keep up old or make new business, it can in most any city find a fairly wide field for the exercise of its functions.

First of all, it can create a local interest in automobiling and automobiles which cannot result to so great an extent from individual efforts to popularize certain machines.

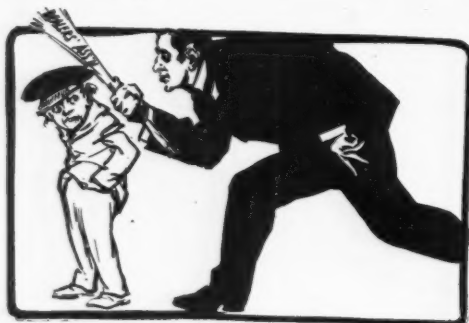
It can produce a quick market without preventing friendly and dignified competition.

It can rid this competition of knocking or any other unfair and dangerous methods.

It can virtually settle the chauffeur problem. Better than any club in keeping track on the professional drivers is a dealers' organization.

For the dealers are in a better position than the users of automobiles to know the drivers and to rate them according to their actual qualifications.

Working individually, the dealers are more or less handicapped in trying to keep close tab on the drivers, many of whom are shrewd enough to turn any competitive spirit to their own advantage.



Working together in one body the dealers can absolutely control and regulate the actions of the chauffeurs and see that there is fair play all around—can prevent the spoiling of a good trade by the influx of improper members.

It can accomplish a great deal toward securing better streets where they are needed; toward securing fair local regulations and toward obtaining good roads in the vicinity in which it is centered.

It can govern the matter of demonstration rides to prevent abuse of the custom by free ride grafters.

The operation of demonstration cars is expensive and if done to no purpose is a loss which means a heavy drag on the profits of the business.

Alone a dealer is helpless to prevent the abuse of the system.

United the dealers can easily establish some system of rebated charge for long rides whereby only prospective customers may avail themselves of the privileges.

The repair shop is one of the most important branches of the business and its importance is steadily growing.

Sooner or later will come the time when a uniform system of charging will be necessary—a scale for the repair of certain parts and a uniform hour rate for work which cannot be scaled.

In connection with repairs, also, the association has an opportunity to divide or trade work according to the facilities of the different shops.

In regulating garage charges there is a further good chance for immediate and effective work.

In cities where no shows are held a spring opening day or week such as the bicycle dealers at Cleveland conducted in their respective stores a few years ago can be held under the direction of the association.

These are but a few of the most important lines of work that can be undertaken by a local organization of automobile dealers.

Once well started the association would find its scope rapidly increasing and its value becoming constantly greater.

EDITORS ON AUTOMOBILING

MOTOR AGE has published several installments of interviews with the managing editors of daily papers in the large cities of the United States.

These interviews are the result of a desire to ascertain directly the personal opinions of the men behind the most potent factors in the direction of public sentiment.

Automobilists frequently accuse daily papers of being prejudiced and unduly narrow in their printed opinions concerning the use of automobiles.

The replies received from the many managing editors who were questioned by MOTOR AGE concerning their personal views in the matter, are as a rule strangely contradictory to such aspersions.

Nine-tenths of the editors expressed the belief that the automobile was the vehicle of the future.

They professed a desire to deal fairly with automobilists, and when speaking of legislation they, in nearly every case, said that their editorial comments in favor of restrictive measures were meant more for the protection of automobiling than for its limitation.

Only the editors of a few such papers as the Chicago Tribune, which have conscientiously



or in some other and more abstruse manner, consistently "hammered" automobiling, refused to talk freely upon the subject or showed any inclination to protest against the rapid growth of the new medium of travel.

For the most part the editors were eulogistic in their comments.

It is accordingly probable that when the novelty of automobiling wears off, when the news value of an occasional accident becomes dimmed and the humor of the editorial paragrapher's little auto' joke is lost in the commonplace aspect of automobiling, the papers generally will be found boosting the industry just as a fair number are already doing.

The others will then be compelled to fall into line.

Automobiling has no enemy in the daily papers.

PANHARD AS A RECORD BREAKER

In 1895 when M. Panhard made the marvelous speed of 15 miles an hour with his racing car, a banquet was given in Paris after the contest, at which some enthusiastic "visionary" predicted that the route would some day be covered by a car running at the rate of 30 miles an hour. Panhard remarked to Baron Zuylen that there was "always some person to make an ass of himself," when he heard the prediction. Some of the present-day scorers should take these figures and study over them carefully before trying to transgress the speed laws.

UTILITY OF THE TRACTOR

Every now and then some inventor or some company brings to view a tractor device combining road or traction wheels, steering wheels, steering mechanism, power plant and fuel carrier, and which may be substituted for the fore wheels of an ordinary carriage or wagon to make of it a complete and self-contained motor vehicle.

Some of these devices have been absolute freaks. A few of them have, sadly enough, been used as mediums for stock jobbing operations, it being apparent that the principle of the thing is of the kind which exerts a magnetic influence upon the rural pocketbook.

Perhaps an occasional tractor possesses real merit. But, even though the tractor itself be excellent mechanically and be efficient in service, there is a strong doubt that the combination of a tractor and the hind end of a horse-drawn wagon is entirely practical.

A universal tractor for various styles of specially built wagon bodies is more rational.

The ordinary carriage or wagon is not designed for motor power, and any arrangement whereby such power is applied to it must necessarily result in a vehicle of hybrid appearance and characteristics.

It cannot be as efficient, as useful or as easily managed as a complete motor carriage. The tractor is bound to possess undesirable qualities not necessary in a motor car.

These, in combination with the "horsey" rear end of the vehicle can but produce a

compromise that is neither mechanically nor commercially acceptable.

Granted that the endurance of the horse is limited, and that the era of motor traction is at hand, there is little necessity for the remodeling of existing carriages and wagons.

Their decreasing production is accompanied by a rapid increase in the production of complete automobiles and the necessity of the tractor will disappear with the very increase in the necessity for motor power.

Future progress demands not motor horses but motor carriages.

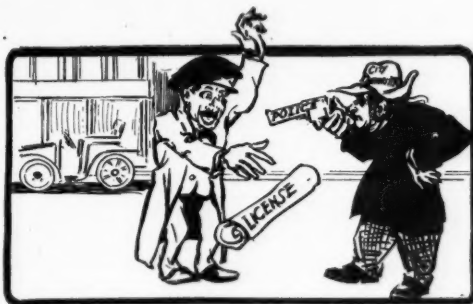
SEE RACE FROM A BALLOON

The Autocar, of London, is having a balloon constructed which will be used in facilitating its efforts to report the Gordon Bennett cup race. If circumstances permit it is the intention to arrange the signaling of cars as they pass given points upon the course, so that spectators in the immediate vicinity may be warned of their approach. The balloon will be 36 feet in diameter, with a capacity of 21,000 cubic feet, and the car will carry three passengers. It will be named the Autocar.

REVOCATION OF LICENSES

In several city councils and in several state legislatures it has been proposed to tie onto automobile regulations a system of punishment by revocation of license.

In other words it has been proposed to take



away the use of the automobile from the man who has violated the regulations.

This is one branch of automobile restriction which cannot be legally accomplished and which cannot exist more than temporarily.

No conservative careful thinking automobilist refuses to accept rational regulations at this immature stage of the sport and industry.

But, on the other hand, none can view punishment by revocation of license as anything else than a plain slap at automobilism—an unfair method taken to vent personal spite.

The automobile is a man's personal property. Its use on public highways may be regulated, but it cannot be forbidden.

The man may be punished for his violations of certain restrictions put upon the use of his car, but he cannot be punished by being kept off of the people's roads.

In some cases such punishment might be effective. But it is not just.

It hangs a weight of disgrace above the heads of all automobilists. It places them in the ridiculous position of children who are punishable by having their toys snatched from their naughty hands.

It is the kind of measure which, if its enactment is tried, brings the fair-minded automobilists into conflict, rather than into co-operation, with the law makers.

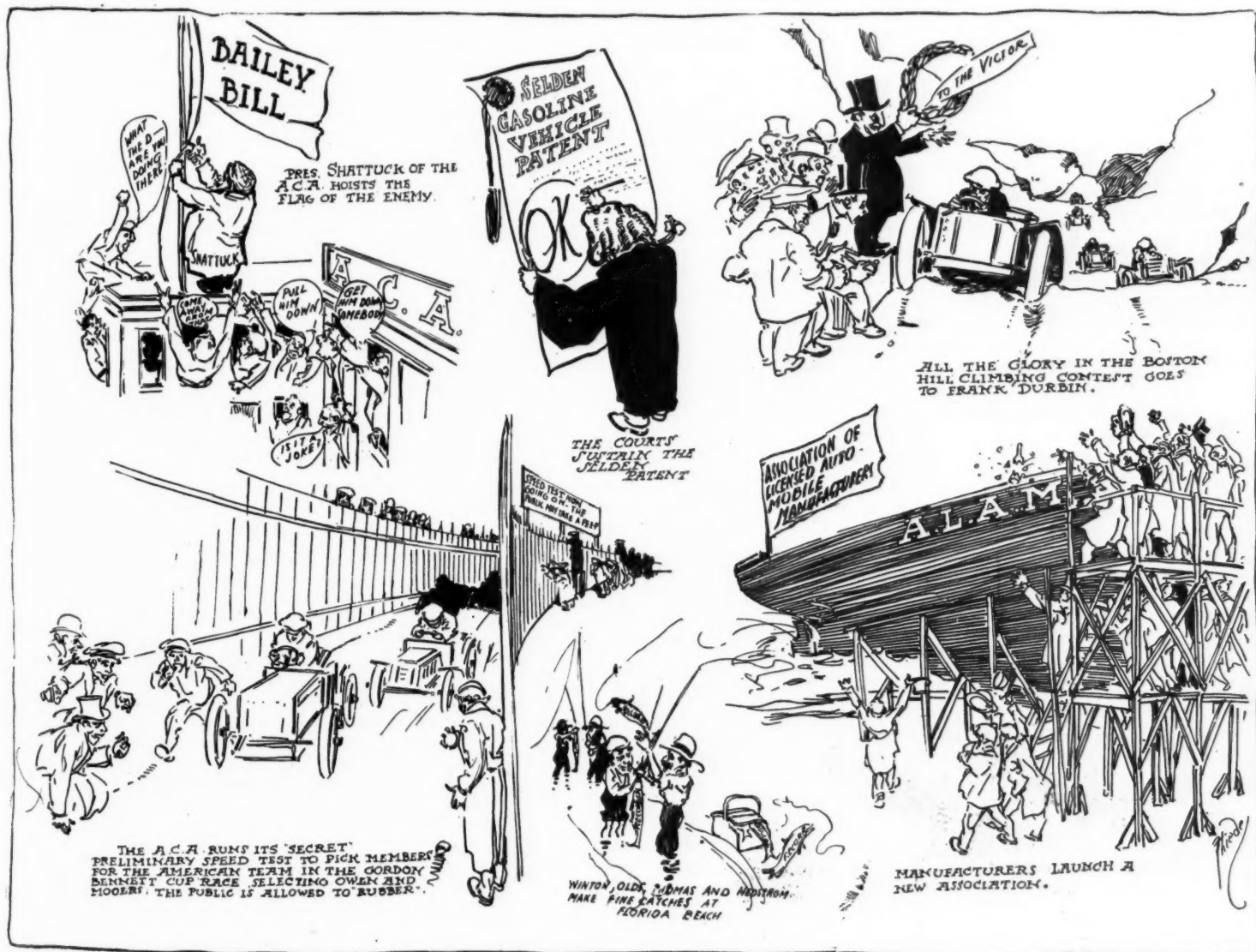
In Chicago a marriage license costs \$1.50, a dog license \$2, and an automobile license \$3. Thus it will be seen that matrimony is encouraged by the officials, and the industrious young man may marry and gradually work up through the different strata of society, from bull dogs to automobiles.

A new occupation opened for women by the advent of the automobile is the instruction of ladies in motor car driving. One who thoroughly understands the mechanism of the various cars can command good prices, and the work is pleasant.

The Germans are now using automobile beer wagons. The only strange and unique feature about this is that they didn't use them long ago. What is home without an automobile beer wagon?

The bad roads of the United States cost every man, woman and child \$8 annually.

APRIL ANTICS IN AMERICAN AUTOMOBILING



MATCH RACE FOR LOCAL HONORS

Amateur Rivals for the Championship of the Hub to Race 10 Miles—Bostonians Take the Legislators Automobile Riding

Boston, Mass., May 2—A 10-mile match race has been definitely arranged between Harry Fosdick, Winton, and Kenneth A. Skinner, De Dion-Bouton. It is to be ridden at the race meet of the Massachusetts Automobile Club at Readville, May 30. The club has offered a special prize for the contest, and as there has long been more or less competitive spirit between the two gentlemen there was little trouble in completing arrangements. Mr. Fosdick will use the regular Winton touring car—the one on which he made a new Boston-Providence record of 1 hour 35 minutes yesterday—while Mr. Skinner will use a De Dion which, he contends, is capable of lowering Fosdick's Providence as well as his New York mark. Both operators have made Boston-New York records. A road race was desired to settle the supremacy question but is out of the question on account of local restrictions. So the track event comes as a sort of compromise.

It is also hoped to bring about a meeting of F. E. Stanley with his new racing car, Rollin White, and C. G. Cannon. Both Cannon and Stanley are working on cars for this event.

A. G. Chamberlain, who has just accepted the local agency of the Moyea car, has entered the open events and the car will probably be driven by Wallis Owens, the ex-cyclist, who is regarded as one of the best operators in the country. He may be remembered as the man who operated the MOTOR AGE car in the New York-Boston-New York endurance contest.

MASSACHUSETTS LEGISLATION

The proposed automobile bill is still in the hands of the committee on roads and bridges and while it is there the Massachusetts Automobile Club, the dealers' association and the manufacturers' association have all been campaigning in what is considered a most effective manner. Instead of buttonholing the individual members of the house the combined committee has invited members to enjoy rides in automobiles to see for themselves what the present law means and what the proposed measures contemplate. Every afternoon during the past week this object lesson has been conducted, and the result is that nearly all members of the house and senate have enjoyed rides. Yesterday afternoon eighty members were taken for a spin through the park system. It was cold and raw, and the statesmen were not clad for the occasion. Then again the dust blew in banks, and filled the eyes and ears of the participants. The cars were run according to the present law, and although several of the politicians tried to induce the operators to violate the speed law they declined on the ground that they did not care to be arrested for too fast riding. It was cold, indeed, and the politicians got the full benefit of the law which they themselves had framed. Later in the day, however, they were given speed permissible under the proposed law and they immediately recognized the difference, and also the fairness of the requests of the automobilists.

An exhibition of the ease with which a stop can be made by a car under perfect control of the driver was then given. Mr. Spears' car, a Winton, was selected. It carried five persons, and was stopped within 24 feet while

going at the rate of 30 miles an hour: At 20 miles an hour it was stopped in 14 feet and at 12 miles an hour in 6 feet. After this the party went to the automobile club for lunch.

It is evident that many of the representatives agreed with the automobilists regarding certain undesirable sections of the proposed bill.

TIMING NOT EVIDENCE

Judge Barnard, of the Brighton court, has given the automobilists of this section great encouragement. After listening to the evidence in a speed case against Kenneth Skinner, the judge said: "The evidence on the testimony of the officers is not sufficient to hold the defendant in spite of the fact that the machines were timed by stop watches."

Judge Barnard based his decision on the apparent inability of officers 100 feet or more away from a certain point to tell the exact time when the automobile passes that point, and intimated that the system of timing automobiles on the public highways by policemen is deplorably inaccurate. Heretofore it has been difficult for an arrested driver to escape conviction for speeding.

PLEASANT RUN ON THE COAST

The San Francisco Automobile Club Opens the Season with an Altogether Happy Trip Across the Bay

San Francisco, April 29—The Automobile Club of California made its opening run last Sunday, and the event was successful in every way. About twenty cars were taken across the bay at 9 o'clock in the morning and were joined by fully as many more from Oakland, Berkeley and other places. The run was made through San Leandro to Haywards. Here about a dozen vehicles from San Jose joined the crowd, so that all told there were over a hundred persons.

An inspection of the cars showed that there were fourteen makes in the party, as follows: Winton, Milwaukee steamer, Knox, Autocar, White steamer, Crestmobile, United States Long Distance, Pierce, Mobile, Cadillac, Oldsmobile, Haynes-Apperson, Locomobile and De Dion-Bouton.

The roads were in good condition, but rather dusty, so that the principal occupation for the first half hour after arriving at Haywards was shaking and washing off the dust. After luncheon the cars were grouped in front of the hotel and the photograph man told to do his worst—or best. As soon as this important part of the program was finished the start for home was made. Some of the drivers were inclined to hurry, knowing the rainy season would soon be here, and drove their cars a trifle faster than the maximum speed allowed by law. One gasoline machine driven by a San Jose motorist collided with a boy on a bicycle, and the bicycle was immediately retired from service. The boy was not hurt. This was the only accident during the entire day.

NEW CLUB FOR JERSEY

The Essex County Automobile Club was formed at a meeting of members of the Automobile Club of New Jersey and others in Newark last Thursday evening. The seceders claimed there was too much A. C. A. influence in evidence in the A. C. N. J. and despite W. E. Searritt's appeal to them to stick to the old club insisted on forming a new organization. R. C. Jenkinson presided and W. J. Morgan acted as secretary. The "Senator" is said to be forming another club in New York also.

CONVENIENCE FOR LONDON CLUBMEN

The Automobile Club of Great Britain and Ireland Gives Much to Its Members—Aims to Make Touring Economical

London, England, April 28—The London clubman counts among the advantages to be obtained from belonging to the ordinary club only the usual accommodations, such as sitting-room, writing-room, reading-room, library, cardroom and sleeping-rooms. The members of the automobile club enjoy these advantages in common with all other clubs, but they have a little more beside.

Among the special features of the Automobile Club of Great Britain and Ireland may be mentioned, first, the grill room. A grill, enclosed by glass screens, has been erected in the dining-room, and a first-class grill cook engaged, so that club members may dine in the consciousness of perfect safety from an American invasion of dyspepsia.

A LARGE GARAGE

The club has large premises close to the clubhouse where there is storage for at least forty automobiles, together with bathrooms and a small gymnasium. Members of the club may drive their cars into the motor house and leave them while they are making use of the club, attendants being always at hand to care for them. This is the only club in London which gives automobile storage accommodation to its members.

Special rates are given members by the automobile stores in London and the provinces, and hotels which are recommended by members are being appointed throughout the kingdom. These will make special provision for members of the club and their cars, at fixed charges.

THE CLUB JOURNAL

An automobile club journal is published weekly and furnished free to members. This contains all the official notes, interesting extracts from home and foreign newspapers concerning automobiles, particulars of events to come and records of automobile trials held by the club.

A practical engineer is engaged exclusively by the club to report to members, for a small fee, the condition of second-hand cars they may contemplate buying—or he will give advice on adjustments and repairs.

A motor servants' register is kept for the exclusive use of members, and confidential information is given concerning men who may be applying for engagements. The club also has a special car to train men for positions as chauffeurs.

FOR CONTINENTAL TOURS

The difficulty, delay and annoyance in connection with the customs formalities in taking a car into a foreign country is obviated, as the club has completed arrangements by which members may obtain papers at the club which will enable them to pass their cars through the customs without the ordinary formalities. No driving certificates are necessary in France, as the certificate of the automobile club is accepted by the French government.

From these special features it will be seen that a membership in the Automobile Club of Great Britain is a practical economy. Many automobilists save their entrance fee

and subscription again and again by the opportunities offered by the club.

TRAINING SCHOOL FOR CHAUFFEURS

The commandant of the Gordon Boys' Home, of London, is desirous of training the boys to become motor drivers, and has announced his intention of buying a good second-hand motor car to be used in instructing them. He has asked the assistance of the automobile club, and the members will probably donate the various parts of a car, which the boys will assemble under their instructors. The services of the club engineer will be granted free of charge in case a second-hand car is purchased. There is great need for reliable motor car drivers, and the move in this direction by the commandant is regarded as a wise one. The home was established for training and educating friendless and destitute boys, so as to fit them for a life of usefulness as civilians, soldiers and sailors.

TEST ENDURANCE RUN COURSE

Members of the Denver Automobile Club Accompany the Committee Over the Memorial Day Contest Route

Denver, Col., April 27—A trial run over the Memorial day course was made yesterday by the Colorado Automobile Club. There were eleven machines taking part, and as they kept together the entire distance they attracted considerable attention along the route. The machines represented were the Olds, Winton, St. Louis, Elmore, Rambler and two others.

The run was made in a little over 4 hours, according to the following schedule:

Denver to Littleton, 40 minutes; on to Sedalia, 55 minutes; to Perry Park, 70 minutes; to Palmer Lake, 75 minutes. Stops were made at frequent intervals, and there was no attempt at fast running. The run was made for the purpose of determining the distances and reasonable speed limitation to be included in the rules for the endurance contest to be given May 30. The committee in charge of the contest felt that a better idea of what would be a good test for the prospective entries could be obtained by a trial run, and the club members were therefore invited to accompany the committee on the ride. The course taken, with possibly a few slight alterations, will be the one followed on Decoration day.

Being the first endurance test which has been given in the West, the Memorial day contest is attracting attention. The course is divided into sections, and at the end of each section is a control, where time will be allowed to refill the gasoline or water tanks or otherwise fit the machines for a continuance of the journey.

LADIES' CLUB ORGANIZED

The Ladies' Automobile Club of Great Britain and Ireland has been formed, and it includes some of the proudest names of the British aristocracy on its list. The Duchess of Marlborough will probably be president. Lady Cantelupe will be treasurer, and the vice presidents are Lady Cecil Scott-Montagu, Lady Beatrice Rawson and Mrs. Adair.

The headquarters of the club will be at 110 Piccadilly, which is only a few doors from the Automobile Club of Great Britain and Ireland. The latter club will assist the ladies with a substantial guarantee to enable them to secure immediate possession of their premises, and for the time being will allow them to use the garage of the men's club.

STATE BODY FORMALLY ORGANIZED

New York Association of Automobile Clubs Actually Launched Upon Its Career—Ratifies the Bailey Bill Protest

Syracuse, N. Y., May 4—Last Wednesday the delegates who attended the preliminary meeting of the state organization the preceding Saturday, met at the Yates hotel in this city and formally organized the New York Association of Automobile Clubs. The following are the permanent officers elected to serve 1 year: President, Hurlburt W. Smith, Syracuse; first vice-president, Harry S. Woodworth, Rochester; second vice-president, John M. Satterfield, Buffalo; third vice-president, Dr. William E. Millbank, Albany; secretary, Frederick H. Elliot, Syracuse; treasurer, A. J. Seaton, Utica. Harry Woodworth acted as president pro tem. and the Buffalo, Auburn and Albany clubs were represented by proxy.

President H. W. Smith was empowered to appoint an executive committee of five, consisting of one member from the Rochester, Syracuse, Buffalo, Utica and Albany clubs; this committee to draft the by-laws and constitution and assume other duties of the association until the annual meeting.

INDIVIDUAL MEMBERSHIP

A meeting of the officers and the executive committee will be held later, following the hearing on the Bailey-Doughty bill May 6. The resolution adopted by the state organization at its first meeting was ratified yesterday and was sent to the executive chamber.

The association starts in a most satisfactory manner financially. Several new clubs have signified their intention of associating themselves with the organization, among them being the Herkimer, Binghamton and Homer-Cortland clubs. It is the intention of the organization to take in not only clubs but individuals who may be so situated geographically that it would be inconvenient for them to associate with a club. Later the association will take up the question of good roads.

RUSH FOR THE SPRING LICENSES

About 300 Chicago Automobilists Invade City Hall in One Day Seeking Renewal of Their Permits

The tuneless but sudden toot of the automobile horn was heard in and about the city hall of Chicago last week, and hitching posts were at a premium while the motor car drivers were indoors negotiating with City Electrician Ellicott for a renewal of their licenses. There are nearly 1,100 licenses in the city, and fully two-thirds of the holders dropped into the city hall on the last day of April to make themselves right with the law for another year.

The badge this year is a gold wreath in relief, on which is a royal blue enamel plate with the words: Chicago Automobile License. On this is a gold bar with the number in black, held by a pair of wings surmounting a shield in scroll.

ALL ABOVE THE 8-MILE LIMIT

A series of tests to determine the efficiency of the law making the speed limit 8 miles an hour was made last week in New York. Tests taken in Fifth avenue at four different points showed that private automobiles frequently passed a block in 10 seconds, or at the rate of 18 miles an hour, without interfering with ordinary street conditions. Electric cabs and delivery automobiles were found to be running

at 12 miles an hour and one electric ambulance was timed at 36 miles an hour. The average rate of speed of private automobiles was 14.3-7 miles an hour. Automobile cabs averaged 14½ miles, delivery automobiles 12 miles and express automobiles 10½ miles.

It was discovered that a reduction to 8 miles an hour would cripple the delivery service of the department stores and many business houses, and that lessening the work of the automobiles now in the city streets will naturally result in an increase in their number, which will add to the congestion of traffic. It is evident that the 8-mile rule, if strictly adhered to, would be a hardship upon the business community generally and not alone to the manufacturers and users of pleasure automobiles.

JARROTT SAYS SPEED WILL WIN

English Driver Asserts Gordon Bennett Course Is Fast and Race Will Be a Great Speed Struggle

Charles Jarrott, one of the English team for the international cup race and who intends to visit this country in the latter part of the summer, believes that the fastest car will win the race in Ireland. In a letter received from him yesterday by a friend in this city he writes as follows:

"I have just come back from Ireland, where I have been having a look at the international cup race course, and you will be interested to learn that in my opinion the fastest car will win the race, as there are long straight stretches on which a great speed can be attained. In fact, I think the whole race will be a hard one and will be a great physical effort on the part of the drivers. I believe the course will be in excellent condition by the date, and I think we shall see one of the finest struggles we have ever had in the history of automobilism."

Continuing in his letter, Jarrott states that he hopes to be able to meet the winner of the Winton-Fournier races, and is also perfectly willing to have a try with Barney Oldfield, though he first prefers to have it out with Winton.

"Though September would suit me best to come over to the United States," writes Jarrott, "I will come earlier if necessary so as to get the hang of track racing, which I do not think will take me very long. I will have one of the fastest machines constructed, and you may rest assured there will be excellent sport in any races wherein I compete."

IN CENTRAL ILLINOIS

The Bloomington Automobile Club, of Bloomington, Ill., was organized April 21 with the following officers: Samuel P. Irwin, president; H. D. Humphreys, vice president; Henry Thobro, secretary; Charles Diets, treasurer; Charles T. Stevenson, road captain; Jefferson Crawford, assistant road captain; W. K. Bracken, E. W. Martens, Charles Cooper, Dr. J. W. Hall and J. L. Ide, directors.

The club starts with a membership of fifteen, which, it is expected, will be doubled by fall. Club runs will be made about the city and to the surrounding towns during the summer. It is the intention of the club to furnish a suite of rooms in good style in the fall. At present the meetings are held at the office of the secretary. Much interest is being manifested in Bloomington this year in automobiles and some eight or ten new ones have already been delivered.

THE READERS'

CLEARING HOUSE

COMPOSITION OF MOTOR CHARGE

Ann Arbor, Mich.—Editor MOTOR AGE—Does the combustion of the air and gasoline in a motor cylinder reduce the volume of the charge after combustion, or is its chemical composition merely changed? Also, what is the chemical composition of the mixture before and after complete combustion?—C. S. R.

The volume of the mixture is reduced about 10 per cent after combustion. Part of the hydrogen in the mixture unites with the oxygen in the air, forming water.

The chemical composition of the mixture is as follows: Before combustion—

Pentane (C_5H_{12}) + air ($80, 32N_2$).

After combustion—

Nitrogen ($32N_2 + 5CO_2 + CH_2O$).

A theoretically perfect interval combustion motor should receive the unburned charge and discharge the burned products into the atmosphere at practically the same pressure and temperature.

IRREGULAR MOTOR EXHAUST

Boston, Mass.—Editor MOTOR AGE—What is the reason of the irregular noise from the large four-cylinder cars of European make? I have a light single cylinder runabout, and I frequently hear this noise from these big cars when they overtake and pass me on the road.—G. N.

The irregular noise is caused by the governor of the motor cutting out one or more of the cylinders when the car is running under light load or at low speed. The governor in many cases acts by keeping one or more of the exhaust valves closed, thus serving as a brake upon the motor by retaining the exhaust within the cylinders that are acted upon, until the motor falls below its normal speed.

MAKING SPEED CHANGE

Scranton, Pa.—Editor MOTOR AGE—I find with my car that I can not change from the third to the second speed without stopping the vehicle; and when the car is standing I can not change the gear at all. When I throw the clutch out of gear the car is stopped by the brake. Can you give me any reason for this or explanation of the cause?—W. R.

Probably the brake band which is operated by the clutch lever is out of adjustment, and is the cause of the car stopping when trying make the gear change. The gears must be revolving at practically the same speed to properly effect the change from one speed to another. When the car is standing no change can be made unless the teeth of the gears should happen to register.

PISTON TIGHT IN CYLINDER

Georgetown, Ont.—Editor MOTOR AGE—I have an air-cooled cycle motor of $2\frac{1}{2}$ -inch stroke and bore, which will run well for about a mile. Then it gradually loses power and finally stops. The cylinder is 5 inches long and has seven ribs on the first 3 inches of its length, next to the head. The head has sixteen ribs, each 1 inch deep and $\frac{1}{8}$ of an inch thick and the valve chamber has 9 ribs, $\frac{1}{8}$ of an inch deep. The lubrication of the motor is by splash from the crank case and seems to be

all right. The carbureter is of the float-feed type with a jet. The motor does not become hot enough to cause self-ignition, as I have tested it by shutting off the battery; it will not ignite without the spark. After allowing the motor to stand about 5 minutes to cool off, it will start and run for another mile and then the same trouble occurs. Can you explain this difficulty?—T. J. S.

The only reasonable solution of this difficulty seems to be that the piston is too "nice" a fit in the cylinder. When the motor becomes hot, the piston binds in the cylinder causing the motor to stop. The piston should be from 5 to 7 thousandths of an inch smaller than the cylinder bore, and the piston rings must be relied upon to make the gas tight fit.

DURYEA ON SIMPLICITY

Reading, Pa.—Editor MOTOR AGE—Your expressions on simplicity and accessibility are decidedly to the point. It is unfortunate that the majority of buyers do not think of these things until they have had one or more cars in actual use. Beginners in the business are prone to want it all and be pleased with complexity more than with simplicity, but experienced users are the reverse and prefer the vehicle that gives them the desired results with the least parts. Some form of accessibility test would be of more value than many of the speed trials at present exploited.—CHARLES E. DURYEA.

FORMS OF CLUTCHES

Memphis, Tenn.—Editor MOTOR AGE—What are the different forms of clutches usually employed for automobile use to connect and disconnect the motor from the speed transmission and driving wheels of the car?—P. D.

The common forms of friction clutches used

for the above purpose are as follows: The cone friction clutch, in which the inner face of the rim of the motor fly wheel forms the female portion of the clutch, the male portion, which is usually leather covered, being attached to the speed transmission shaft. The expanding ring clutch, in which a split ring is forced outward into contact with the inner periphery of a gear or pulley by suitable mechanism. The disk or plate clutch, in which a circular plate is brought into contact with the side of a gear or the web of the motor fly wheel by means of toggles or cams. The planetary system of speed transmission forms its own clutch or engaging mechanism, by a brake band around its periphery, which causes one of the sets of the rotating gears in the system to stand still upon the application of the brake band, thereby causing rotation of the driving sprocket or gear.

WRONG GASOLINE

Chicago, Ill.—Editor MOTOR AGE—Is it not possible for users of gasoline automobiles to make a concerted effort to persuade local dealers or repair shops to carry a standard or reliable grade of gasoline for automobile use? All last week my motor was continually misfiring and working badly. I tried everything I could think of, but to no avail—ground the valves, put in new batteries, etc. I then compared notes with other users of cars and found they have the same trouble. We jointly purchased a supply of gasoline of a specific gravity of 0.66, and secured good working results. The gasoline I had been getting was found on testing to have a specific gravity of only 0.72.—C. E. A.

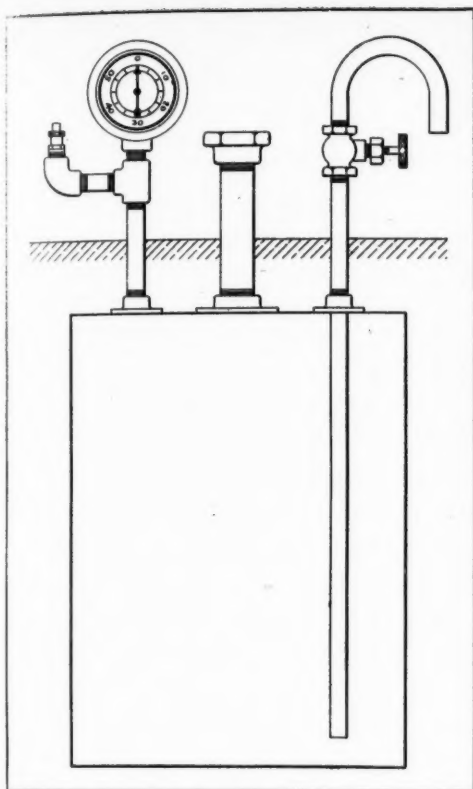
CONVENIENT GASOLINE STORAGE

Doniphan, Neb.—Editor MOTOR AGE—The photograph shows the gasoline car which I built during the winter in my bicycle shop. I purchased motor castings and did all of the blacksmithing, wood work and painting. The motor develops 8 horsepower and drives through sliding gear transmission. The front wheels, steering knuckles, and steering post



MOTOR AGE

Harry Wilson's Home Made Car



MOTOR AGE

Wilson's Gasoline Storage Tank

have ball bearings, while the rear wheels run on roller bearings. I use an Auto-sparker for the ignition, without batteries. The box front contains a folding extra seat which will easily seat three children. The wheels are 30 inches in diameter with 3-inch tires; the tread is standard and the wheel base 6 feet. The car weighs 1,350 pounds and with two passengers can be run at from 5 to 20 miles an hour.

I keep the carriage in a one-story brick stable 16 by 20 feet. The gasoline supply tank is buried in the ground and is fitted with a valve which permits the attachment of an air pump, that pressure may be formed upon the gasoline to force the latter into the stable for filling the tank in the car. I enclose a sketch of this tank, thinking it may interest other automobile users.

The tank is made of No. 20 galvanized iron, and has a capacity of 50 gallons of gasoline. The supply pipe is carried almost to the bottom of the tank, and has a valve and curved discharge pipe above the ground line. The filling tube is of $\frac{3}{4}$ -inch wrought iron pipe with pressure tight cap on top of the same. The air pressure and supply pipes are both of $\frac{1}{2}$ -inch wrought iron pipe. An air gauge reading up to at least 30 pounds should be fitted on the top of the vertical part of the pipe, a tee and elbow being fitted below the gauge for the reception of an ordinary tire valve, by means of which the air pressure is put in the tank. From 10 to 15 pounds pressure is all that is necessary to carry in the tank. The tank should be buried a suitable distance in the ground as illustrated.—HARRY WILSON.

FAVORS TWO-CYCLE MOTOR

Cleveland, O.—Editor MOTOR AGE—I would like to say a few words in favor of the two-cycle type of motor for automobile use. So far only one concern has had the temerity to put an automobile on the market which is equipped with a two-cycle motor. In the Otto or four-cycle type of motor one stroke of the piston is used for compressing the charge, thus doing negative work, and the following stroke is a working one. In the two-cycle

type of motor no such condition exists, as each alternate stroke is a working one, and as compared with the four-cycle type where only every fourth stroke is a working one it surely must have some advantages in this respect. Again if the motor speed be 900 revolutions per minute for either type of motor, it is surely better for the life of the machinery and comfort of the occupants of the car to have 900 light impulses instead of 450 heavy ones. Also the extreme simplicity of the two-cycle motor, in the entire absence of cams and gearing which are productive not only of noise but great wear and tear as well, ought to commend it to the use of manufacturers of automobiles.—F. K. N.

POWER REQUIRED

Jacksonville, Fla.—Editor MOTOR AGE—What horsepower is required to take a 1,000-pound car up a 15 per cent grade?—B. S.

One actual delivered horsepower would take the car up the 15 per cent grade, if the motor were geared sufficiently low. The horsepower required to take a 1,000-pound car up any grade depends altogether on the length of time in which it is desired to make the ascent.

SINGLE OR DOUBLE CYLINDER

Jackson, Mich.—Editor MOTOR AGE—Which will develop the greater horsepower, a single cylinder motor of 5-inch bore and 6-inch stroke, or a double cylinder motor of $3\frac{1}{2}$ -inch bore and 4-inch stroke, and what will be the speeds for the horsepower? Also, which is the better type to use?—F. G.

The single cylinder motor of 5-inch bore and 6-inch stroke will develop about 6-horsepower at 600 revolutions per minute. The double cylinder motor of $3\frac{1}{2}$ -inch bore and 4-inch stroke will give about 7-horsepower at 900 revolutions per minute. If simplicity and fewness of parts are important the single cylinder motor is to be desired. The double cylinder motor will, however, have less vibration on account of having more, but less powerful impulses.

RUNABOUT BODY DESIGN

Harrisburg, Pa.—Editor MOTOR AGE—Having read with great interest the articles in MOTOR AGE by different persons on the construction of an ideal light car, I enclose a sketch of a design for the body and running gear of a motor car of the runabout type, weighing about 1,000 pounds. It is somewhat

different in appearance from the conventional type of body used on this class of motor cars and presents an attractive and nobby appearance.

The motor and speed change gear are carried on a sub or auxiliary frame, located below the top of the running gear frame. The drive from the speed change gear to rear wheels is by a propeller shaft and bevel gear on the differential. The gasoline tank is located on the rear of the dash and in front of the operator. The hood or bonnet in front is large enough for a vertical two-cylinder motor. Wheel steering is used and the car controlled by two levers and a foot brake. No attempt has been made to show any details of the machinery of the car, the aim being simply to present a general design with graceful outlines, and having a more clean-limbed appearance than some of the runabouts at present in use.—E. B. S.

GASOLINE-STEAM ENGINE

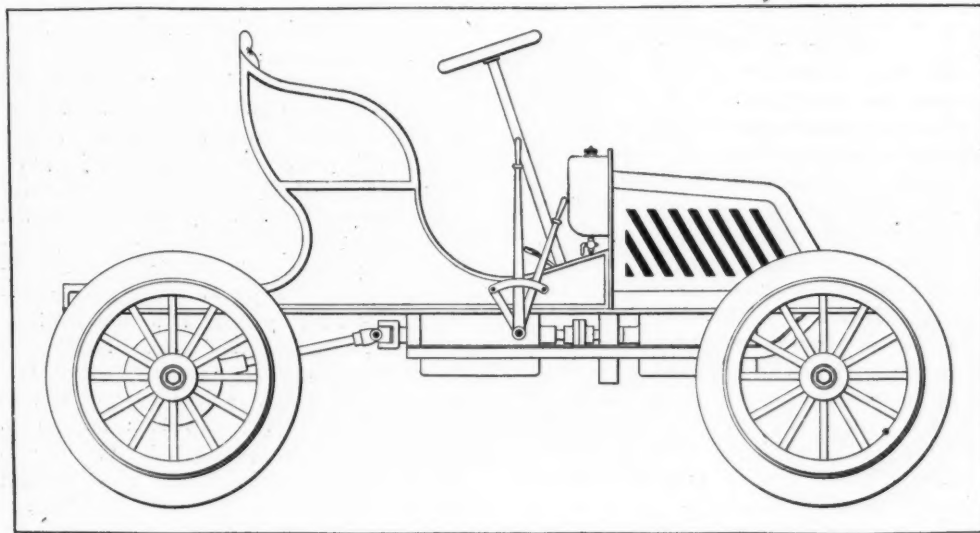
Rockford, Ill.—Editor MOTOR AGE—Why could not the heat generated in the cylinder of a gasoline motor be utilized by having the cylinder surrounded by a steel water jacket and allowing steam to generate under pressure, instead of letting it evaporate as is usual? An auxiliary cylinder could be fitted to the motor, and the steam utilized in this manner. I am aware that a pump would be needed to keep the water supply constant, and also water and steam gauges needed. But would not the extra power gained and the greater range and elasticity of the same more than offset these minor accessories?—G. B.

Such a combination of steam and gasoline motor was patented and built by Simons, of Nottingham, England, back in the seventies, but as to the ultimate success of the motor nothing is known, as it was never put on the market for sale or use.

ACETYLENE MOTORS

Tyler, Tex.—Editor MOTOR AGE—Is it possible to operate a gasoline motor with acetylene gas, made, of course, by the action of water on calcium carbide. Calcium carbide is cheap and only a small quantity of water would have to be carried for this purpose; and it further seems to me that the calcium carbide and water would not take up nearly as much room as the usual gasoline tank.—P. C.

The principal difficulty experienced with the use of calcium carbide is the fouling of the cylinder with a thick carbon deposit. Another



MOTOR AGE

Body Design Submitted by E. B. S.

is that the cost of the calcium carbide cannot begin to compare with that of gasoline. The odor from the exhaust would be very much more so than that of gasoline. Further, the generation of gas from calcium carbide is very irregular, as is instanced in the case of acetylene lamps.

ALCOHOL FOR FUEL

Akron, O.—Editor MOTOR AGE—Can alcohol be used successfully in an automobile motor and is it as efficient as gasoline?—W. S.

Alcohol can be used in an automobile motor if it is filled with a carburetor heated by a jacket through which a portion of the exhaust gases can pass. The compression of the motor must also be increased at least 50 per cent to get the same efficiency as when gasoline is used. As alcohol is a slow burning combustible, it requires a higher degree of compression to produce the same firing results as gasoline.

PICRIC ACID IN GASOLINE

Waltham, Mass.—Editor MOTOR AGE—I recently tried the experiment of using picric acid in gasoline as described in MOTOR AGE. After following the directions and carefully straining the gasoline, I put it in the tank of my motor-bicycle. The motor fired on the first turn of the pedals, and I was at once convinced that the power of the motor was increased, as the noise from the exhaust, due to the explosions, was nearly twice as loud as before. I immediately started out to try the stiff hill which I never climbed before without pedaling. The machine took me up the hill in great style with my feet off the pedals all the way up. I was so pleased with the results that I ran until my gasoline tank was almost empty, and then had to get back home on "common gasoline," and the difference was surprising. I used up all the "picric-gasoline" without a single misfire or any signs of the spark-plug sooting.—A. C. H.

RESISTANCE IN CHARGING CIRCUIT

Denver, Col.—Editor MOTOR AGE—Could I use a wire resistance in place of an incandescent lamp, when charging a small storage battery which I use for ignition purposes?—H. J.

A wire resistance could be used for this purpose, but it would cost just as much as a 32-candlepower lamp, and further does not have the advantage possessed by the lamp of being able to tell when the battery is fully charged by the lamp becoming somewhat dim.

FORM OF TRANSMISSION

Muncie, Ind.—Editor MOTOR AGE—Which is the most desirable form of speed change gear for two speeds forward and reverse, to be used in a light runabout—a sliding gear or planetary form of transmission?—S. R.

It is really a matter of choice, but if only two speeds forward and reverse are desired, a planetary transmission is simpler and cheaper for the purpose than the sliding gear form of transmission.

BATTERY DETERIORATION

Little Rock, Ark.—Editor MOTOR AGE—I have a small two-cell, 4-volt storage battery which I use for the purpose of ignition. It does not seem to work properly, as when fully charged by a primary battery of five cells it will only run my automobile about 40 or 50 miles, instead of over 200 as formerly.

I took out the lead plates and examined them and they are a rusty yellow color. Can you inform me what is the matter with them?—F. S. L.

The lead plates have become oxidized from standing in the solution when the battery is not in use. They will have to be returned to the maker of the battery for refilling. When a storage battery is not to be used for a length of time, it should be fully charged and then the electrolyte or sulphuric acid solution removed, and the cells filled with distilled water. When needed, simply replace the solution, and the battery will be found ready for use.

JET AND SPRAY CARBURETERS

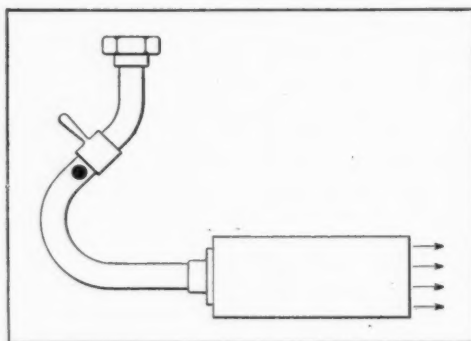
Akron, O.—Editor MOTOR AGE—What is the difference between a spray and a jet type of carburetor?—M. Y.

A spray type of carburetor delivers the gasoline in the form of a fine mist while the jet type discharges the gasoline in the form of a small stream.

MUFFLER PHENOMENON

St. Louis, Mo.—Editor MOTOR AGE—A very interesting subject appeared in MOTOR AGE last week in the article in which it was shown that A. C. Mount's motor bicycle ascended a hill with the muffler connected, but could not ascend the same hill with the muffler cut out. I noticed the same phenomena almost a year ago in connection with a motor bicycle, in which the muffler was arranged very much as shown in the accompanying drawing.

I had fitted the same cut-off, as described by Mr. Mount, by drilling a $\frac{1}{8}$ -inch hole in the



exhaust pipe to be opened and closed by a slide. I also found that the machine would exert more power and run faster with the hole closed than when the hole was open and the muffler cut out.

A technical explanation of the action of the muffler is as follows:

When the hole was closed by the slide, the exhaust gases were forced through the muffler and discharged in the rear in a series of jets as indicated by the arrows, and these jets, acting upon the atmosphere, exerted a reactive force corresponding to the pressure within the muffler, and thereby tended to assist very materially in propelling the vehicle. It is a well-known fact that a jet of steam or air discharged under high pressure either in the air or other fluid, will produce a marked reactionary effect upon the discharge nozzle. In fact, torpedo boats have been driven by "jet motos" and the principle has also been applied to larger vessels. The principle is the same as that of the reaction turbine. The described construction of the muffler veritably places it within the class of motors, so that the much despised muffler instead of retarding the en-

gine and vehicle, in reality assists in propelling.

I suggest that hereafter all mufflers be constructed to discharge rearwardly. A forward discharge is a direct retardation of speed.—JOHN C. HIGDON, M. E.

ELECTRO-GASOLINE CARS

Boston, Mass.—Editor MOTOR AGE—What are the principles of the electro-gasoline system of propulsion used on some automobiles?—K. T. N.

The electro-gasoline system comprises a gasoline motor whose fly wheel usually forms the armature of a dynamo. The dynamo is used to operate a pair of electric motors which drive the rear wheels of the car; and also to charge a set of storage batteries, when the power delivered by the gasoline motor is in excess of the power required to propel the car. The surplus of power thus stored in the batteries can be used by the electric motors when hill climbing is necessary or bad roads encountered. The dynamo which is driven by the gasoline motor is usually convertible, and can be used as a motor, with current from the storage batteries to start the gasoline motor, as a substitute for the usual cranking method.

CHARGING FROM 50-VOLT CIRCUIT

Wichita, Kan.—Editor MOTOR AGE—Is it possible to charge a set of forty cells of storage battery from a 50-volt light circuit? The instruction book which came with my electric car says it must be charged only from a 110-volt circuit. The circuit I have available is only 50 volts.—S. W. A.

The batteries can be charged in two sets in parallel from the 50-volt circuit, after which they must be connected in series to give their correct total voltage.

FRAME CONSTRUCTION

San Francisco, Cal.—Editor MOTOR AGE—Which is the better construction for the frame of the chassis or running gear of an automobile, an angle or channel section?—R. P. E.

It is largely a matter of choice, but the section modulus or factor of strength is greater for a channel section of the same depth and weight as an angle section. The angle section, however, affords the easier mechanical construction.

STYLE OF CARBURETER

Elkhart, Ind.—Editor MOTOR AGE—Which is the more suitable for use with a 4-horsepower gasoline motor, a mixing valve or a float-feed carburetor?—H. W.

It depends largely upon the speed of the motor. A mixing valve is suitable for speeds up to 750 revolutions per minute, while a float-feed carburetor is better for speeds above this point.

STATE AUTOMOBILE LICENSES

Brooklyn, N. Y.—Editor MOTOR AGE—Does a tourist require a license in every state through which he may wish to pass?—SUBSCRIBER.

Some states require automobilists to have licenses, but the various state laws are not uniform and many states as yet do not require licenses.

RATHER UNUSUAL WISH

An enterprising lamp manufacturer, in his anxiety to secure business, says in a circular just issued: "We are desirous of putting out as many of these lamps as possible in the hands of customers this spring."

EASTERN WOES CREEP WESTWARD

Troublesome Chauffeurs Spot Chicago's Horizon but the Dealers Have Felt No Great Harm—Opinions of Tradesmen

In New York and in the old country the owners of motor cars find that one of the greatest troubles experienced is in the imposition practiced on them by their chauffeurs. While some of these men are honest, try to give good service and earn their wages, it is unfortunately true that a great number have brought themselves into disrepute by their open and bare-faced blackmailing tactics.

It is nothing uncommon to have the chauffeur go to a dealer and peremptorily demand pay for buying repairs or supplies for his employer, and the dealer is forced to comply with his demands or lose the business. When a prospective purchaser has selected a car, his chauffeur often goes to the dealer and threatens to report unfavorably on the car unless he receives a commission of 10 or 15 per cent. The real worth of the car does not enter into the consideration. It is merely a matter of the amount of commission paid.

OPINIONS OF CHICAGO DEALERS

In the west this condition does not exist to so great an extent, but it is beginning to develop. Some of the retail dealers of Chicago were questioned by MOTOR AGE this week regarding the situation, and the best method to adopt to overcome the evil.

Manager Sykes, of the Chicago branch of the Locomobile Co. of America, said that his experience so far had been very limited, and that no particular trouble had occurred from chauffeurs attempting to injure the cars by misrepresentation. He said that chauffeurs often succeeded in getting commissions on sales. "The demand for chauffeurs is very small," said he, "probably 25 per cent of the buyers of gasoline cars ask for chauffeurs, and we have never yet had a request for a driver from the purchaser of a steam car. We can furnish a competent driver, however, if given a few hours' notice.

When asked what advantages would be derived in forming an association of retail dealers, Mr. Sykes said: "I think an association should be formed by all means, if for nothing more than the protection of legitimate dealers. Business could then be held on a more substantial basis. The association could also regulate fees or commissions to chauffeurs, could protect against demonstration to parties who have no intention of buying and could help in securing just legislation."

Fred Pardee, of Pardee & Co., said that only about 10 per cent of their buyers ask for chauffeurs and these were supplied without difficulty. No trouble had ever been experienced from misrepresentation of their cars by chauffeurs and very few attempts had been made to get commissions. "We cannot figure out any great benefits to be derived from a dealers' association, except to regulate prices, perhaps, on supplies and sundries. We may be wrong, however, and are willing to be convinced," concluded Mr. Pardee.

"DRIVE YOUR OWN CAR"

"The Autocar Co. has hardly any call for chauffeurs," said F. P. Illsley, "and we advise against hiring them. About 5 per cent of our customers ask for drivers for their cars. Most of them do their own operating. At present we have no competent drivers to spare. We

have found that nearly always there is trouble with chauffeurs. The greatest advantage to be derived from an association of dealers would be to protect their customers against harm resulting from the employment of incompetent men."

Githens Bros. said that they had no requests for chauffeurs for their small cars and only a few for their large ones. They are not in a position to furnish drivers. Some trouble has been experienced from chauffeurs getting cars out of order, and attempts have been made to secure commissions on sales. Githens Bros. are decidedly in favor of a retail dealers' association and believe it would be of great benefit to the trade and also to customers.

TO FIGHT THE SELDEN PATENT

The Rockaway Automobile Co., of Rockaway, N. J., is sending a circular to manufacturers not in the Selden combination urging them to organize to "defend and protect themselves against the threatened and unwarranted patent litigation by the present owners of the so-called Selden patent."

The circular continues: "We have retained competent attorneys, and invite firms interested to share the expenses and advantages. A small amount will be necessary, and a pro rata assessment. We should also like to have you aid us in securing some well known and trustworthy man who will act as president; some one who will use proper discretion in the acceptance of members of our association, otherwise the other side may secure sufficient members to control the organization and defeat its purposes."

The circular is signed by the Rockaway Automobile Co.

RIDE GRAFTERS ANNOYING

"The suggestion in MOTOR AGE that an association be formed among the retail automobile dealers of Chicago is a good one," said H. W. Jones, of the Chicago branch of the Electric Vehicle Co. "There are many ways in which members could assist each other. One source of trouble and expense that could be stopped is the annoyance caused by a class of grafters who visit the stores as prospective purchasers, and insist on being given long rides to test the cars. Nothing less than a 40 or 50-mile ride will convince them of the worth of the machine, and then they retire gracefully and say they 'will think it over.' They make the rounds of the stores and manage in this way to get a number of free rides, having no intention whatever of buying from any one. Of course it is proper and right for a man to give a car a test before buying, and we are all willing to demonstrate our cars to anyone who is really thinking of purchasing. If the dealers would unite and agree on a certain time allowance for demonstration, and a charge after that time for the use of the car, the grafter would be crushed. In case a sale is made the charge could be deducted from the price of the car. No one with serious intentions of buying could object to this action on the part of the dealers."

NEW JOB FOR BIDWELL

George R. Bidwell has been elected president of the International Fire Engine Co. Mr. Bidwell was formerly general manager of the La France Fire Engine Co., which exhibited an automobile fire engine and a pleasure vehicle at the New York show.

COL. POPE NOW CONTROLS IT ALL

For \$3,500,000 the Pope Mfg. Co. Secures the Automobile Making Interests of the Defunct American Bicycle Co.

The Pope Mfg. Co., with Col. Albert A. Pope president, is now in control of the International Motor Car Co., and the Federal Mfg. Co., assets of the late American Bicycle Co. The bid of the Pope company was \$3,500,000, and its acceptance by the receivers was confirmed by Judge Kirkpatrick, of the United States court, at Trenton, N. J., last week.

The court ordered:

THE COURT'S ANNOUNCEMENT

That upon the surrender for cancellation of the receiver's certificates, heretofore issued by said receivers, to the amount of \$500,000, and upon the making of the cash payment of \$3,500,000 mentioned in said offer, the said receivers shall forthwith execute and deliver such bill or bills of sale and assignments as shall be requisite in law to convey and assign to said purchasers or their nominee said personal property according to the terms of said offer, and that in lieu of the payment by said purchasers of said cash sum of \$3,500,000 the said receivers shall accept from said committee an acknowledgment of the receipt of such dividends as the said purchasers as such committee shall be entitled to on a pro rata division of whatever is divisible to and among the creditors of the defendant company upon the completion of this transaction. In ascertaining the amount of such dividend, and in order that immediate delivery may be made of said bills of sale and assignments and of the possession of the property to be sold, said receivers shall provisionally fix and establish the amount of the debts proved to them with interest and adjudged as of August 30, 1903, where interest is payable.

The court further stipulated that:

POSITION OF CREDITORS

Neither this order or decree nor anything done under it or in pursuance of it shall affect in any way the right of any creditor of the defendant company who is not represented by the purchasers as a reorganization committee to receive in cash his pro rata share of whatever may be finally ascertained by the court to be divisible among the creditors of the said corporation, nor shall anything in this order contained be construed to adjudicate the validity of any claim or demand against said corporation which has not been admitted by the receivers, and all questions in respect to the validity of any such claim or demand are reserved for the further order of the court. Nor shall anything in this order contained be construed as violating any contract heretofore made by the American Bicycle Co., the defendant herein, with Canada Cycle and Motor Co., Ltd., and any such contract, if not assumed by the purchasers under this sale shall remain of the same force and effect as if this sale had not been made.

NEW YORK DEALERS AND CHAUFFEURS

New York, May 1—At today's meeting of the New York Automobile Trade Association Mr. Mabley, in behalf of the committee on chauffeurs, presented an elaborate report covering many points and containing many excellent suggestions. No final action was taken on them pending a conference of the committee with similar committees from the N. A. A. M., A. C. A. and A. A. A. tomorrow.

Kirkpatrick and Harrigan, Sidney B. Bowman, the Woods Motor Vehicle Co., and Robert E. Fulton were elected to active membership.

The matter of the proposed parade was laid over until after the hearing before the governor on the Bailey bill.

It was decided to ask the N. A. A. M. and the automobile clubs of the city to co-operate with the association in some forcible demonstration of the present discrimination against automobilists in the enforcement of the local speed ordinances.

WONDERFUL TRADE IN CALIFORNIA

All Dealers at Los Angeles Report Rapidly Increasing Business—Most of Them Contemplate Immediate Enlargement

Los Angeles, May 4—Trade here has never been as good since the automobile business began as it is now. Every retail concern is enlarging.

W. K. Cowan the pioneer dealer has nearly completed a large garage on lower Broadway and will move into it about the middle of May. Al Schaff of the International Motor Car Co. today sold Cowan a 12-horsepower Toledo. This will give Mr. Cowan a full line, as he already has a large business in Waverleys and Ramblers and has long been trying to decide upon a touring car to complete his line.

The local Oldsmobile company in charge of Messrs. Peer and Shettler, has a wonderful trade and can literally claim to sell about as many automobiles as all the other automobile agents combined. There are now nearly 200 Oldsmobiles in use in this city and its suburbs, and Manager Peer says he will sell altogether 400 cars this season.

The real estate boom has caused a great demand for automobiles, and the Oldsmobile seems to be popular for showing suburban property.

The Autocar agents, Heineman & Pratt of Seventh and Main streets, are also in the middle of the boom. The Knox is gradually catching on, a few being seen on our streets. It also is handled by Heineman & Pratt.

The Los Angeles Automobile Co. bemoans the delay in getting Elmores and Generals, and Fred Stamm of the company has been east to try to hurry the factories. The concern is at a standstill for cars but has a good repair business and storage.

LOCAL FACTORY BUSY

The Auto Vehicle Co. has already turned out a number of its cars, which bear the name Tourist. The Tourist has chain drive, the old-style lever steering and an opposed, double-cylinder motor placed under the center of the carriage. The transmission is of the planetary type.

The company is working on twenty-five carriages most of them being already sold. When the *MOTOR AGE* man visited the factory he was surprised to find that so many parts of the Tourist were made on the spot. Probably few Eastern automobile factories are better equipped. Superintendent Hain spent all last year getting ready and when the new factory was opened the best workmen and machine tools were chosen. The factory is to be more than doubled in size. Those who have already secured Tourists are well pleased and find that the carriage is excellent for roads and grades of this vicinity.

The Winton is sold in Southern California by the Locomobile Co. of the Pacific a San Francisco corporation, which rents space in the Electric Auto-Livery on Main street. The demonstrator and agent is L. H. Johnson, formerly a New Jersey bicycle dealer. Mr. Johnson reports orders for nearly a dozen 1903 Wintons, of which six have been delivered. The Locomobile Co. also sells the Panhard and the U. S. Long Distance.

The local branch of the Mobile Co. of America, on South Broadway, in charge of W. P. Tanner, was opened early in the year and has sold a creditable number of Mobiles. John Brishen Walker was here some weeks ago and

negotiated for one of the finest buildings in the city, but the deal fell through. A son of Mr. Walker, the treasurer of the company, is here now. The present store is in good location, but is limited for room so that a repair shop and wareroom is located a block away.

SEVERAL GARAGES BUILDING

The White touring car has caught on here and the three already in use attract much favorable notice. Manager C. A. Hawkins was here last week and sold five. The White Stanhope is well liked in California and about a hundred are in use in the state, most of them being in the sunny southland. The garage craze has hit the White Sewing Machine Co. and Manager Hawkins informs your correspondent that his house will probably build a garage with at least 10,000 square feet of space on the ground floor.

The local Oldsmobile company is also on the verge of building a garage and will probably select a site near Cowan's store. The Central Auto & Electric Co., a new concern, at 120 West Sixth street, is bent on securing the old car barn at Seventh and Grand avenue, and if it cannot get that for a garage and salesroom, may have a large building erected. Heineman & Pratt will also have a large building constructed for their use as they have already built over all the available ground at their present garage. Church, the Packard and National agent, will have a large building when his short lease expires. It is hoped that most of the automobile agencies which must seek larger quarters, will locate on lower Broadway so that they will all be together.

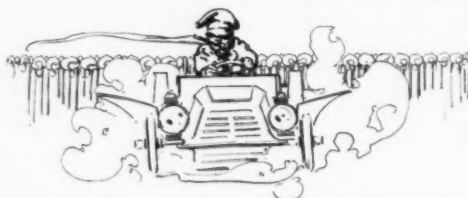
PROSPECTIVE SHOW AND RACES

The automobile show and race meet to be held at Agricultural Park is attracting much attention as the date of the meet gets nearer. Manager F. Alonzo Cook says that he has sold nearly all the spaces for the show and that about 3,000 admission tickets have been sold to automobile owners and their friends.

The racing will be held on the afternoons of Saturday and Sunday, May 9 and 10. The annual Fiesta closes on Saturday. President Roosevelt will be here on the seventh and eighth. There will be eight events each day and these will be divided between bicycles, motor cycles and automobiles. Among the closed events is a team bicycle race for teams from this city, San Francisco and San Jose; a match motor bicycle race and a race for Oldsmobiles. Among the big machines to go for fast time are Panhards, and Peerless, White, Winton and Locomobile touring cars. A Darracq is also expected and it may be possible to secure some of the eastern flyers.

MANY STORAGE BATTERY DEPOTS

The Electric Storage Battery Co., of Philadelphia, has added a number of new Exide battery depots to its list of stations, so that it now has nine depots, as follows: 148 West Eighteenth street, New York; 250 North Broad street, Philadelphia; 39 Stanhope street, Boston; 200 Pearl street, Buffalo; 264 Michigan avenue, Chicago; 3937 Olive street, St. Louis; 158 South avenue, Rochester; 818 Jefferson street, Toledo; 265 Jefferson avenue, Detroit.



THE WORK OF ENGLISH TRADESMEN

National Association of Makers Trying to Limit Holding of Shows—Propose General Rules of a 4-Week Endurance Test

London, England, April 20—The Society of Motor Manufacturers and Traders, of England, has already allotted most of the space at the Crystal Palace automobile show which will be held February 14 to 24, 1904. Over 50,000 square feet have been taken. The main object of this society is to limit the number of shows to one a year. The society contends that one comprehensive and representative exhibition is of more value to the automobile movement and to the manufacturer than are two or three which are neither large nor representative. In order to carry into effect this object thirty-five of the principal members of the society have signed a bond not to exhibit at any other motor show in England.

LIGHT CAR TRIALS

The society has recommended in connection with the proposed trials of light motor vehicles next year the following points:

That the trials be to demonstrate the capabilities, economy and handiness in the use of motor vehicles carrying loads not to exceed 2 tons and driver.

That there be four classes—carrying respectively 500 pounds or under, 1,000 pounds or under; 2,000 pounds or under, and 4,000 pounds or under.

That the trials extend over 1,200 miles, covered in 4 weeks, commencing not earlier than April.

That each vehicle carry the full declared load during the whole of the trial.

That the working cost and selling price be taken into consideration in making the award.

That each vehicle be finished complete and not in a temporary manner, and vehicles similar in every respect to the ones entered are to be on sale for 3 months after the trial.

That the cars run 5 days in each week, and may be overhauled and adjusted on the sixth day. All repairs and renewals shall be declared and noted. In the case of electric vehicles, accumulators to be charged under supervision.

That hill climbing tests be a feature of the trials.

GOVERNMENT PATRONAGE

An agreeable change has come over the government of the United Kingdom the past few months in the official attitude toward automobiling. It has always been a source of disappointment to automobilists that the government has done so little toward aiding the movement. The first indication on the part of the authorities was given by the king, when he became patron of the automobile club, but the declaration of Lord Dudley that he expects to be present in the club enclosure at the Gordon Bennett race is really the first official act by the executive government to encourage automobiling. The co-operation of Lord Dudley and the Irish government made possible the holding of the Gordon Bennett race in Ireland, and to show the appreciation of the members of the automobile club a vote of thanks was passed by the club committee at the last meeting, giving credit to the Lord Lieutenant for the great assistance he has rendered to the movement in Ireland.

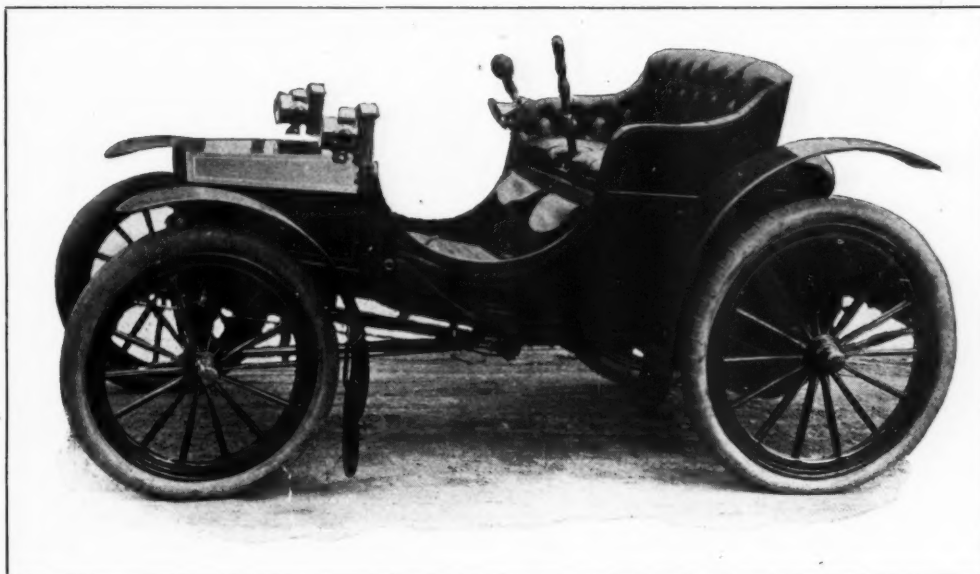
NEW AMERICAN AND EUROPEAN GASOLINE CARS

DURYEA ACCEPTS STYLE

Charles E. Duryea, of Reading, Pa., veteran builder, enthusiast, honest man with opinions of his own, has backslidden. He has not exactly taken the enemy's cup and swallowed its contents but has effected a sort of compromise between public demand and his own beliefs.

For years the earnest advocate of motor truck construction, he has brought out a new model which looks like a Mercedes in front and a Duryea in the back. It is in reality the same old Duryea with its three-cylinder inclined motor in the rear—but it has a veritable motor bonnet—minus motor—in front. Despite its acknowledgment of prevailing style as contradictory to usual Duryea practice it is really the nobbiest Duryea car yet built by the Duryea Power Co.

The car was recently built to order for M. E. Brightbill, of Annville, Pa. It weighs 1,100 pounds and has the regular 12-horsepower motor mounted, with the complete transmission gear, under the seat. The imitation Mercedes front is used to carry parcels. The rear springs are extraordinarily long and with the large wheels and tire tend toward extreme comfort. The center of gravity is low, the top of the cushion being level with the tops of the wheels.



MOTOR AGE

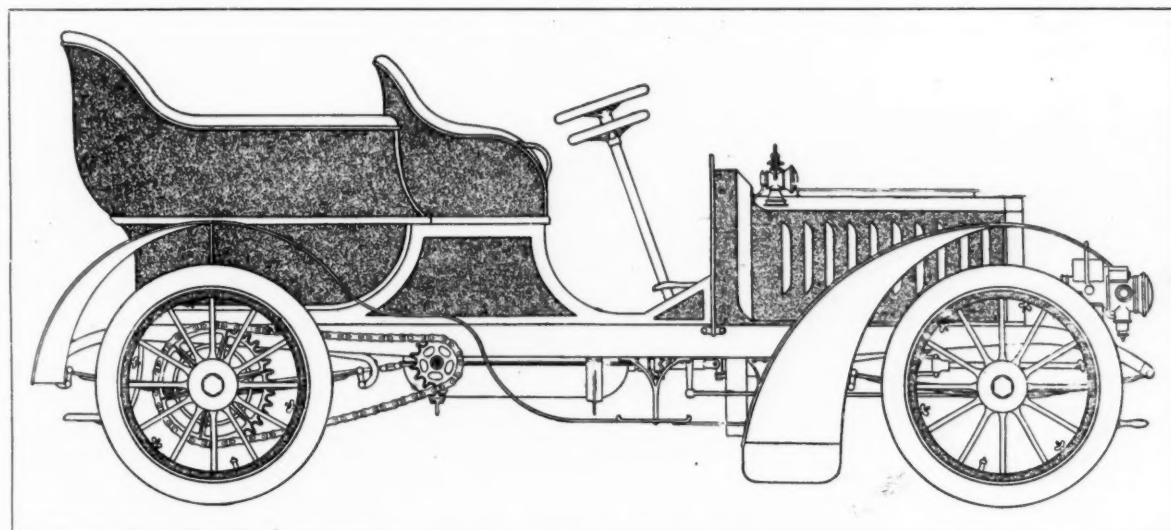
The Mercedes-Front Duryea

frame. It is open in front, with a typical water radiator.

The motor used is the Graham-Fox compound pattern with one low and two high pressure cylinders, driving through a standard set of

ders in line and is supported by the main frame. All side levers are obviated, the control being through the wheel under the steering wheel. This operates gear changes, clutch, etc. The engine speed is controlled by the throttle and spark lead, both

through one lever on top the steering wheel. There are two pedals, one operating the clutch brake and the other the emergency brake. The wheel base is 112 inches, and the tread 68 inches. The wheels are 34 by 4 inches, with Diamond double tube tires. The rear sprockets are bolted to metal hubs instead of to the spokes on the artillery wheels as ordinarily. To insure true running, the sprockets are turned and bolted to the hubs, the shoulder for this attachment being faced off in a large lathe after the centering on the hub bearing. The water circulation is by a



MOTOR AGE

The Graham-Fox Car

The car is painted a bright red with gold stripes. Instead of the regular condensing system a pump and radiator are provided, the latter being under the front end of the body.

THE GRAHAM BOX CAR

One of the newest of the new gasoline cars of this season's vintage is the Graham-Fox, which will be formally introduced about June 1 by the Graham-Fox Motor Co., 52 West Sixty-seventh street, New York. The car is a large seven-passenger tonneau with a king of the Belgians body. The front seat is divided and the large detachable tonneau seats five persons comfortably. The entire body is of aluminum.

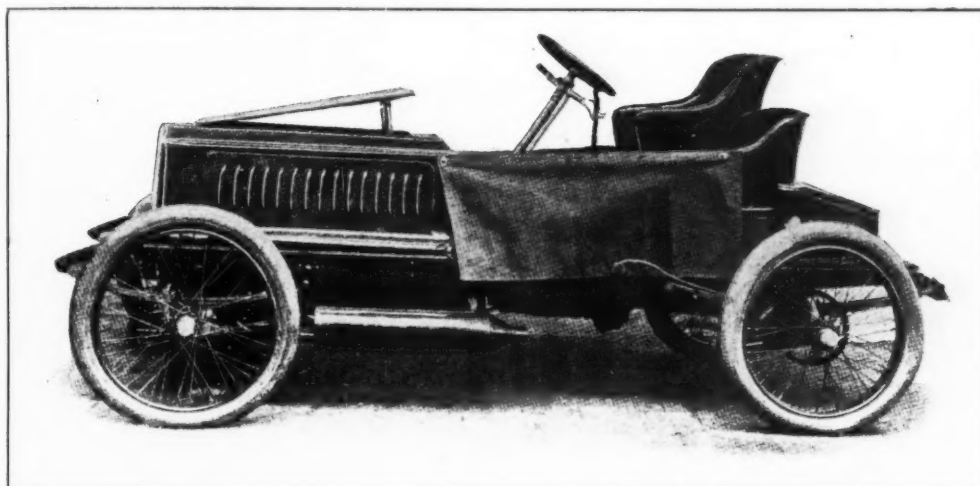
The main frame is made of bars of pressed steel lines but with reinforcing fillets in the inner corners of the channel. These side bars extend in curved lines front and rear to form the spring supports. The dash is open at the rear, with a forwardly extending housing covering the lubricating tank and pump, spark coil, generator and contact device. The hood has champhered corners, the straight sides curving out at the bottom to meet the line of the

sliding gears, furnishing three forward and a reverse drive, to a cross shaft, from which the final drive is by two chains to the rear wheels. The speed gears, differential and clutch, are all inclosed in one case with splash lubrication. The motor is upright with its three cylin-

ders in line and is supported by the main

frame. All side levers are obviated, the control being through the wheel under the steering wheel. This operates gear changes, clutch, etc. The engine speed is controlled by the throttle and spark lead, both through one lever on top the steering wheel. There are two pedals, one operating the clutch brake and the other the emergency brake. The wheel base is 112 inches, and the tread 68 inches. The wheels are 34 by 4 inches, with Diamond double tube tires. The rear sprockets are bolted to metal hubs instead of to the spokes on the artillery wheels as ordinarily. To insure true running, the sprockets are turned and bolted to the hubs, the shoulder for this attachment being faced off in a large lathe after the centering on the hub bearing. The water circulation is by a pump driven direct from the two-to-one shaft.

The first two cars will be equipped with motors developing 17-horsepower, at 800 revolutions. Subsequent cars of the style shown in the illustration will have 35-horsepower motors running at 600 revolutions.



MOTOR AGE

The Paris-Madrid Four-Cylinder Darracq



The 30-Horsepower De Dietrich for American Trade

THE STOUT CLARKMOBILE

The Clarkmobile Co., of Lansing, Mich., is introducing an 1,100 pound runabout of the recently popularized larger-growth type. The company was organized in April, 1902, and continued the mechanical development of a car upon which F. G. Clark had then been working for a year and a half. The car has been in testing use for 2 years in substantially the same form that it is now offered to the market. The company is incorporated with a capital stock of \$50,000. Its officers are A. C. Stebbins, president; H. E. Thomas, vice president; F. G. Clark, secretary, treasurer and general manager.

The Clarkmobile is of the box-front stanhope pattern with a single-cylinder motor under the seat, planetary transmission and other ear marks of typical runabout construction. On the other hand it has such characteristics of heavy car construction as rectangular frame, long wheel base, four full elliptical springs, wood wheels of the artillery pattern, wheel steering and wide, deep and well upholstered seat. The wheel base is 6 feet and the tread standard. The false bonnet or hood in front is used for luggage.

The single cylinder motor is rated at $6\frac{1}{2}$ to 7 horsepower. Strong, simple and durable construction are its chief characteristics, freakish design having been avoided. A special feature is the ample water jacketing which in-



A Thornycroft Truck for Gold Ore Transportation in South Africa.

cludes both valve chambers. Jump spark ignition with a vibrator coil is employed. There are two sets of batteries with a switch by means of which either may be used. The motor

is controlled both by throttling and spark timing. The starting crank is so disposed that the motor can be started from the seat. The Upton planetary gear transmission, furnishing two speeds forward and a reverse drive, is controlled by a single lever. The rear axle runs on Timken roller bearings. The brake is double acting and is on the compensating gear on the rear axle. By removing eight bolts the entire body may be lifted from the running gear, thus exposing all parts for inspection or repair. The maximum speed is given as 30 miles an hour. It is claimed that ordinary hill climbing can be done on the high speed.

GRAPHITE IN MOTOR CYLINDERS

The Joseph Dixon Crucible Co., of Jersey City, N. J., says that its No. 635 graphite is peculiarly suitable for the lubrication of bicycle and other small gasoline motors and offers as substantiation the following letter from a user:

I have used Dixon's No. 635 graphite in connection with oil in this way—I have a small rubber hose or tube the same as used in atomizers. Into one end of the tube I force an ordinary toothpick quill and by pushing it into the graphite two or three times the quill is easily filled. Then I unscrew the spark plug of the engine and push the quill end of rubber tube through the expansion chamber down into the cylinder; having first put the piston head to its lowest point. Then putting the end of the tube in my mouth, with a light puff of air I discharge the graphite into the cylinder, which being oily, gets an even deposit all over the bearing surface.

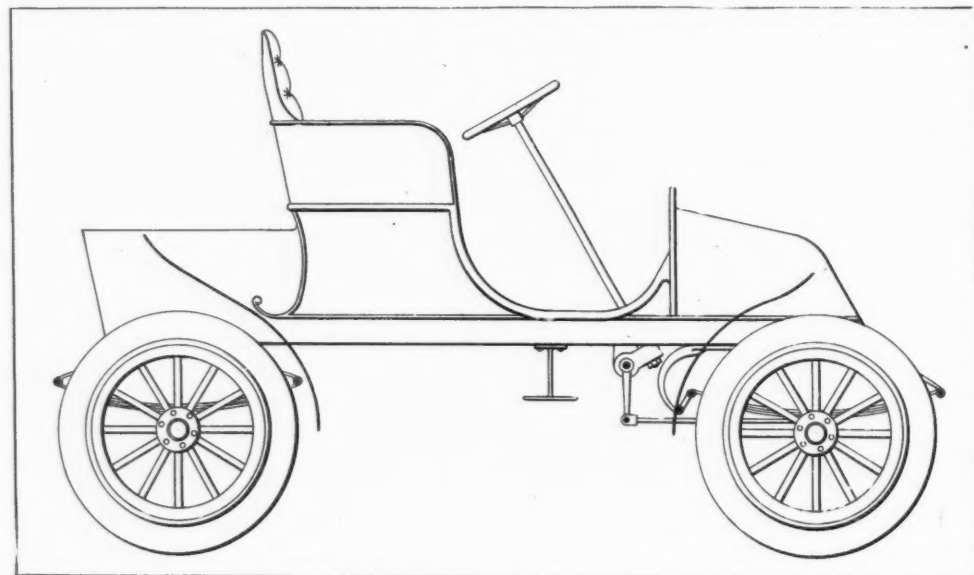
This I do each day before and after the day's riding, the result is a perfect condition of the engine at all times. This method may appear to many as a somewhat troublesome job, but it is not, and not more than 2 minutes is consumed in the operation.

BUILT FOR OUR ROADS

The latest French manufacturer to cater to the American trade is the firm of De Dietrich and Co., of Lineville, France, and Niederbronn Alsace, Germany. Albert Lemaitre, one of the directors of the company, is in New York with sample cars and has during the past 2 weeks received several orders. The 30-horsepower car which Mr. Lemaitre is showing bears a plate on its side with the inscription "Made especially for American roads," and the construction of the vehicle seems to bear out this statement. All the parts are of generous size, and strength seems to be the predominant feature. Mr. Lemaitre states that his firm contemplates organizing a company to make the cars in this country and that the capital necessary has already been subscribed in France. He is at present making his headquarters at 133 West Thirty-eighth street.

A TIP ON IGNITION BATTERY CARE

No operator of a gasoline car, if he wishes to avoid trouble and delay, should be without an extra set of batteries. The best and most convenient method is to have two sets of batteries, connected to a two-pole switch, so that the two sets of cells may be switched in alternately, thus allowing one set to rest while the other set is working. It not only increases the efficiency of the batteries but prolongs their life and will be found to be the cheapest way in the end.



The Clarkmobile

OPINIONS ON TWO-CYCLE MOTOR DESIGN

Experimenter Tells Why He Believes Motors of This Type Can Be Made More Successful Than They Have Been—Faulty Construction Instead of Wrong Principle the Cause of Prejudice Against Them

Chicago, Ill.—Editor MOTOR AGE—The prejudice of most automobile builders against the two-cycle gasoline motor has in the past been justifiable in most cases, and still is to some extent, although builders of such motors have lately improved their product quite perceptibly.

The two-cycle motor in which the enclosed crank case is used in connection with the piston as an air pump, and which has inlet and exhaust ports on opposite sides of cylinder as means of transferring and exhausting charges, is a simple affair and to the ambitious amateur seems an easily constructed motor. But he usually does not know what he is against until he has tried.

BORE AND STROKE

It is the prevailing custom to make the bore and stroke equal or nearly so. This gives the best result as far as crank case compression is concerned, but it gives the exploded mixture in the cylinder a rather short time in which to expand, and as the exhaust port opens when the piston is still a considerable distance from the end of the stroke, there is the high terminal pressure with accompanying sharp exhaust that is found so difficult to muffle. By making the stroke, say, one-sixth greater than the diameter the crank case pressure will still be quite sufficient to force the charge into the cylinder even to the highest practical speeds—and with a little attention to filling up every possible bit of space around crank and connecting rod the stroke might be made still longer.

THE DEFLECTOR

One peculiarity which seems to be common to most motors of this type and which has done more than any other one thing towards bringing them into disrepute, is the use of too short a deflector on the piston, serving to guide the incoming charge towards the head of the cylinder. It is made in many shapes and forms, the best one being made on a curve closely following the circle of the cylinder wall, with the ends turned back so as to barely escape the cylinder. It is usually placed a distance equal to the width of the port or more from the cylinder. In the early days of the engine it was made very short—too short, in fact, as it is still in some cases.

The poor old two-cycle motor has, times out of number, been condemned verbally and in print on account of the smell of unburned gases pouring out of its exhaust pipe, and also on account of the persistency with which it would refuse to start. When one happened to inquire of the wise men who put it up for the reason of such misconduct the answer would be misleading. Many two-cycle motors built today have the deflector entirely too short, with the resulting strong odor of unconsumed gases and low power. It has been found that an engine fitted with a short deflector will not throttle down to as slow a speed by far as one fitted with a longer one. Other things being equal, the short deflector allows a large percentage of new charge to pass out of exhaust port, the longer one throwing the charge sharply up against the cylinder head. It can safely be said of the deflector—the longer the better. It should, at least, be as long as the clearance

space, and gratifying tests have been made with an engine in which the deflector is allowed to extend $\frac{1}{4}$ of an inch up into the cylinder head, this being cut out for the purpose. The motor slowed down to a point never before thought possible and at all speeds showed a perfectly clean exhaust.

FIRING IN CRANK CASE

There is another cardinal sin claimed to be inherent in the two-cycle motor—back-firing in the crank case. In the early days of this type of motor one maker was known to put a safety valve on the crank chamber to prevent it from being blown to pieces. Even the best engines of today are not wholly free from this defect. Many remedies have been suggested and tried and while the evil was in some cases due to leaky pistons, about the only thing that has been done is to have the exhaust port open earlier in the stroke—a wasteful method. Lengthening the stroke in proportion to the bore and leaving the ports in the same relative positions will effectually do away with this trouble, even at the highest speeds.

Another source of back explosions is the late point at which some engines are made to ignite, the late ignition causing the flame to remain in the cylinder until the new charge rushes in and is immediately exploded.

FORM OF IGNITION

The jump spark has been in use on four-cycle motors for many years, in fact, almost from the start, but until lately was not considered fit for the two-cycle motor on account of the greater amount of lubricating oil thrown up in spray form into the cylinder with the charge. Experiments with this form of ignition have proved that the jump spark is superior to all other kinds on account of its reliability and the ease with which it can be retarded or advanced—there is only this difference in its use in the two cases, the ignition can not be as late in a two-cycle as in a four-cycle motor.

The mica insulated plug has proved to be the best in this case as the explosions follow each other so rapidly in a two-cycle engine that porcelain will crack much easier than ordinarily. A mica plug has been known to stand up day after day in an engine of this kind, and dripping with oil which apparently had no effect on its insulating quality, no extra spark-gap being used or known at the time.

CARBURATION

Carbureting valves similar to and of the Lunkenheimer type are giving good satisfaction on two-cycle motors and nearly all are piped to an air jacket around the exhaust pipe,

the warm air passing through the carbureting valve. This works very well as long as the valve does not become too hot, in which event the gasoline will vaporize before leaving the valve and the explosions will become irregular.

The surest way to "feed" gasoline to a two-cycle motor is to attach a valve to a short air jacket surrounding the exhaust pipe and as close to crank case as possible and connected with it. The cold air enters through the valve and sprays the gasoline against the hot exhaust pipe, where it is immediately vaporized and passes into the crank case. If the inlet to the crank chamber is placed as close as possible to the inlet port, the mixture will have to travel but a short distance before it rushes into the cylinder on the first stroke. The engine consequently requires less "cranking" in starting. The main thing about the vaporizer is to keep it cool and the gasoline hot.

THE MATTER OF SPEED

One hardly finds a two-cycle motor guaranteed by its makers for a higher speed than 600 revolutions per minute even in the smallest sizes, and, it is claimed, that while one may run them as fast as the crank case "pops" will allow, they will lose in power as the speed exceeds the normal point. While this may be true in a number of cases it is also true that if due attention is paid to some of the features mentioned in an engine can be produced which will run continuously at any speed attained by any four-cycle engine and at nearly double the power for the same weight.—R. BOLLING.

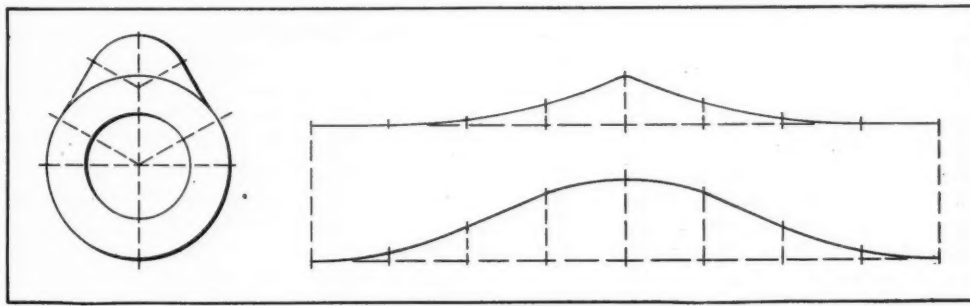
INLET VALVE CAM DESIGN

With a suction inlet valve the size of the charge admitted to the motor cylinder at slow speeds will be about three-quarters of the piston displacement, and at high speed not to exceed seven-eighths of the piston displacement. This is caused by the friction on the air in passing through the contracted opening, and by the necessity of overcoming the pressure of the valve spring by the suction of the piston.

If the valve spring be sufficiently light to allow free access of the mixture to the cylinder, the valve will not seat itself quickly enough at the end of the suction stroke to prevent back-slip or loss of a portion of the charge, this being forced out of the cylinder upon the commencement of the return stroke of the piston. With a properly designed cam to operate the valve mechanically, these difficulties may be readily overcome.

The cam illustrated at the left of the drawing is designed with this end in view and also to operate the plunger rod or valve lifter without any objectionable knocking or pounding.

The circular part or base of the cam should not be less than five times the lift of the valve. The actual angle of the cam, or time of its operation, is 90 degrees, but as this will give a cam of extremely abrupt rise, the angle is made 120 degrees, which gives a gradual and easy lift to the valve. In order that the valve



MOTOR AGE

Inlet Valve Cam Design

will operate through the correct angle of 90 degrees, the clearance, or distance between the end of the valve stem and the lifter, should be about one-eighth of the lift of the valve. The cam will then commence to lift the valve at the right time, and will yet have a gradual and easy rise.

As the exhaust valve must be opened at a joint before the end of the explosion stroke of the piston, a cam of the same design may be used for the exhaust valve, thus simplifying the construction of the motor mechanism.

Diagrams of the action, or lift, of a suction inlet valve and of a mechanically operated one are shown. The upper one shows the suction inlet valve curve and the lower the curve of the mechanically operated valve. It is apparent that the efficiency of the suction inlet valve is far less than that of the mechanical inlet valve, as the valve is not open at all for one-eighth of the piston stroke and only slightly open at the one-quarter stroke point; while the total lift of the suction inlet valve is only about two-thirds of the amount actually required for a full opening, and which is given by the mechanically operated inlet valve. The suction valve diagram is determined mathematically and that of the mechanical valve graphically.

MIS-FIRING IN MOTORS

If the spark plug is covered with soot or grease mis-firing will often result. An extra spark device placed in the secondary circuit will generally overcome this difficulty, but prevention is better than cure and over lubrication should be avoided and the best grade of cylinder oil used.

One of the most common causes of mis-firing is an improper mixture of gasoline and air. Too much air or too much gasoline will cause mis-firing. The remedy is obvious.

A loose connection in the primary or secondary circuit is another source of mis-firing. A loose wire may be in contact and allow one or two explosions to take place. The vibration of the car afterwards may shake the wire loose from its contact and then the motor will mis-fire.

All connections should be carefully cleaned and screwed tight.

Short circuits and current leakage by contact of a bare place on a wire with some metal portion of the car, or by a spark plug with defective insulation will also cause the motor to mis-fire. The spark may arc or jump elsewhere than between the platinum points of the plug, rendering a new plug or a fresh insulation necessary.

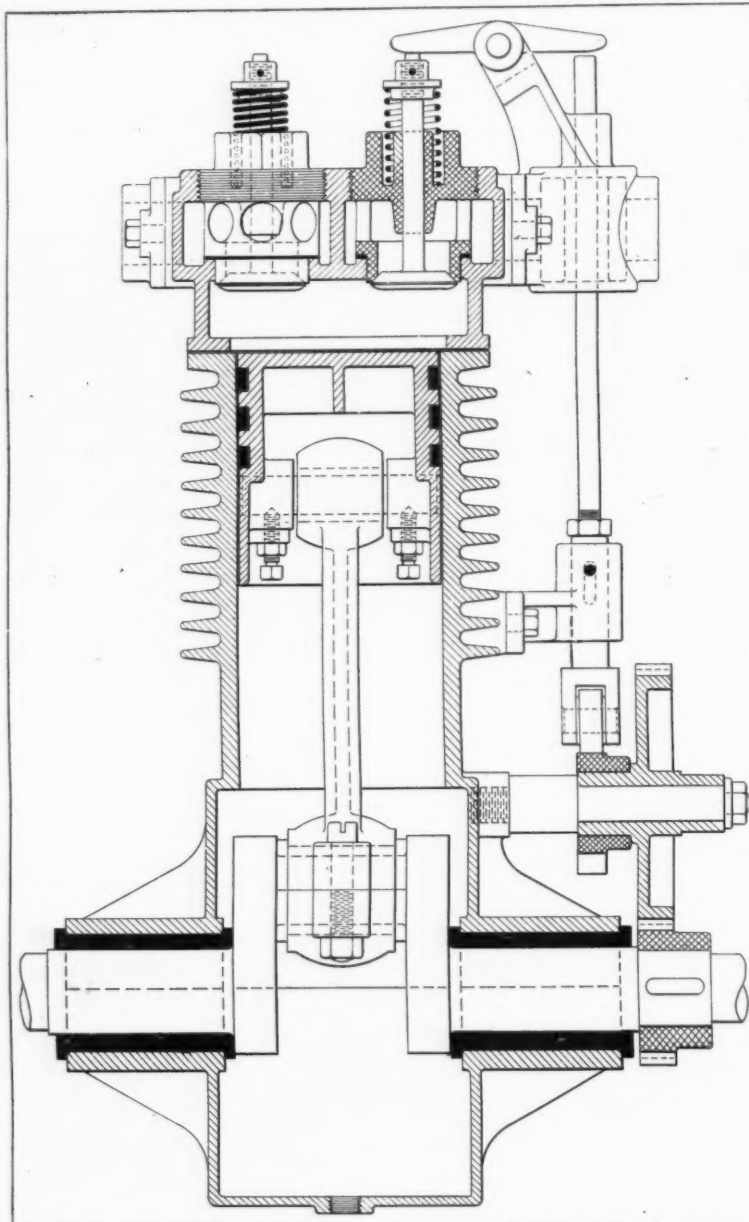
Batteries which are almost exhausted will give rise to explosions in the motor cylinder which seem all the more violent on account of their irregularity. This should be the time to switch on the extra set of batteries, if one is carried. It is perfectly useless to connect the exhausted cells with the new set, either in

series or parallel, as it will reduce the new cells nearly to the voltage of the exhausted ones.

Closing the points of the spark plug will help the batteries, and enable the operator to get the car home, if he has no extra set.

DESIGN OF AN AIR-COOLED MOTOR

It has been assumed by many designers of air-cooled gasoline motors, that, in order to obtain the greatest cooling effect, the metal in the cylinder walls and radiating flanges should be as thin as possible. Recent developments in air-cooled motor use tend to show that this



Design of an Air-Cooled Motor

idea is far from correct, and that motors with thicker walls and radiating flanges will have a better cooling effect than those with thinner cylinder walls and flanges.

The adoption of cylinder walls and flanges of minimum thickness was originated by constructors of the bicycle type of air-cooled motors, where the reduction of weight was the main object in view, the increase in cooling efficiency by the use of thickness metal being sacrificed for the reduction in weight.

In the motor illustrated the cylinder walls have a thickness equal to one-twelfth of the cylinder bore and the radiating flanges at their base or root a thickness equal to one-fifteenth of the cylinder bore. The cylinder proper and the upper half of the crank case are cast in-

tegrally, the crank case being parted on the center line of the crank shaft and the lower half secured in place by bolts.

The exhaust valve cam gears are not encased, inspection and accessibility being considered of more importance than appearance. The exhaust valve plunger rod is carried in a bracket attached to the side of the cylinder and the lower end of the valve lifter rod is secured into the top of the plunger rod and provided with a lock nut, so that adjustment for wear in the cam and roller may be made.

The exhaust valve flanged pipe connection forms a guide for the upper end of the valve lifter rod and the bracket for the rocker arm is cast in one piece with it. The valve cages are detachable and may be quickly removed with a wrench for inspection, without disconnecting either the inlet or exhaust pipe connections. This feature of the design is no more expensive in construction and has several advantages over the commoner method of making the valve seats an integral part of the combustion chamber. A damaged valve can be easily and quickly replaced with a new one, without taking apart or removing any pipe connections.

An annular recess is provided in the hexagon part of the valve cage, which projects around the threatened portion of the valve cage. Both the inlet and exhaust valves are of the same dimensions, so that only one style of valve is needed. The spring caps on the upper end of the valve stems are threaded to fit the valve stems and secured in place by split pins. An annular space surrounds the valve cages to afford ample room for the admission and discharge of the gases through the round openings in the lower part of the cages. Copper gaskets about 1-16 of an inch thick are placed upon the shoulders near the bottom of the cages to form gas tight joints between the shoulders and their seats.

The connecting rod is of cast steel and of I section in its center portion. A solid phosphor bronze bushing is used in the wrist pin end of the rod, and a split flanged phosphor bronze bushing in the crank pin end.

The crank shaft journal bushings are also of phosphor bronze and flanged so that they can be held in place by the split hubs of the crank case.

With a piston velocity of 750 feet per minute the power of this motor will be: With $3\frac{1}{4}$ -inch bore and stroke, $3\frac{1}{2}$ horsepower at 1,280 revolutions; with $3\frac{1}{4}$ -inch bore and stroke, $2\frac{1}{2}$ horsepower at 1,450 revolutions, and with $2\frac{3}{4}$ -inch bore and stroke, $1\frac{1}{2}$ horsepower at 1,630 revolutions per minute.

The Robbins & Myers Co., of Springfield, O., has begun the manufacture of an electric automobile under the patents of Ralph Thompson, of that city. It is expected that sample cars will be ready for display within a few weeks.

FROM THE FOUR WINDS



The United States Long Distance Automobile Co. has substituted New York for United States in its title.

The Mackle-Thompson Automobile Co. will soon begin the manufacture of a gasoline automobile in Elizabeth, N. J.

St. Joseph, Mo., has about fifty automobilists who are now discussing the advisability of holding a series of races this summer.

The Victor Auto Storage Co. has established a garage at 147 West Fifty-fifth street, New York. It will handle the National electrics.

The coach builders of Glasgow are complaining that the cabinet makers are making automobile bodies in violation of trade union principles.

Both the New York motor cycle clubs had runs Saturday. That of the New Yorks was to Tottenville, S. I., and of the Alphas to Nyack, N. Y.

William L. De La Fontaine has resigned his position as sales manager for the Mead Cycle Co. and has accepted a position with Pardee & Co., of Chicago.

The R. E. Dietz Co., of New York, is sending out a neat circular offering automobile gas lamps at a special reduced price to the first 500 persons ordering.

The Automotor Journal, of London, in speaking of the automobile laws in America, observes that "British automobilists have something to be thankful for that they are not free Americans."

John A. Kingman, manager of the Locomobile Co. of America, has booked passage for May 18 for Europe, where he will spend a month looking over the company's foreign interests.

Will the Irish "keep the pig in the parlor" according to the old song during the Gordon-Bennett race, or will they turn it loose on the course to watch the cars go by? is a question now vexing interested automobilists.

The Globe, of Hartford, Conn., is fully awake to the development in automobile building, and on Sunday, April 26, issued a six-page automobile supplement, giving a description of the motor car industry in that city.

The Standard Anti-Friction Equipment Co., of New York, has removed to 144 West Thirty-ninth street, where a large stock of Benoca tires will be carried in stock, and special attention will be paid to applying them to automobiles.

The number of entries in the Paris-Madrid race is 274 up to date. This includes 105 heavy cars, sixty-two light cars, forty-eight voitures, and fifty-nine motor cycles. In the Paris-Vienna contest last year there were 205 entries.

The Sherwood Mfg. Co., Buffalo, N. Y., issues a catalogue devoted to articles manufactured for engines and boilers. A specialty is made

of fine brass work for engine rooms, special lubricating devices, fine brass and bronze castings, nickel plating and special brass work to order.

Cheer up, automobilists of America and New York! The numbering proposition isn't so bad after all. The King of Portugal has set a noble example, and his car, which he uses all over Lisbon, bears the label, "3 Lisboa," in crude white 4-inch letters. "The King can do no wrong."

The police commissioners of London have ordered two 10-horsepower automobiles to be used for official work in and around the London district. It is claimed that the London police are more considerate of motorists and it is the rural officers who make life a burden for drivers of motor cars.

Two Oldsmobiles have been ordered from the Olds Motor Works by Julio A. Rocca, president of the Argentine Republic. It is presumed that the president wants two machines on hand, so that in case he has a puncture and a rebellion both at the same time, he can use the second machine to seek calmer pastures.

At the opening run of the season given by the Hudson County, N. J., Automobile Club last week there were eighteen machines in line. The run was from the club house in Jersey City to Bergen Point and return. Dinner was served at Arlington Park. The guests included the mayor and the boulevard commissioners.

The suggestion is made by the Car, of London, England, that the streets be cleaned by a vacuum apparatus similar to that used in cleaning carpets or buildings. The system would certainly be effective and also hygienic. The engine could propel the vehicle as well as create a vacuum which would draw the dust up into the receptacle.

The steamship Ferdinand de Lesseps has been chartered by some French makers to carry the machines of racers and tourists to Dublin for the international cup race. The vessel will leave Havre on June 27 and arrive at the Irish capital the following day. It will be the headquarters of the French contingent during the automobile race and fete.

The west park board of Chicago has emulated the example of the south park board by passing a rule that all automobiles run on the west side park and boulevard system be equipped with numbers. The 5-inch numbers required on the south side are not stipulated, however. This leaves only the north side of town for un-numbered automobiling.

The municipality of Hartford, Conn., was the first to install electric patrol wagons and ambulances, and the chief of police is authority for the statement that the cost to the department for one year has been about 50 per cent of that for maintaining horses during the last year they were used. He also says there were further benefits because of instant readiness for use and the higher average speed of the electric vehicles.

A service of automobiles at reasonable rates is promised by M. de Crenner, of Paris, who says he will run them on the taximeter system, which has proven so successful in Cologne and other German cities. The lowest fare to be charged is 10 cents for 1 mile. For \$1 an automobile can be hired for 2 hours, and \$2.50 will secure it for the day. The automobiles will resemble in build an English cab. The service will commence with 120 cabs, and if successful, it will be extended to the suburbs.

The Ranier Co., general sales agent for the Vehicle Equipment Co., removed May 1 from 281 Ninth avenue, New York, to the corner of Broadway and Fiftieth street. This company claims to be the largest makers of heavy vehicles in the country, and has over 400 in use at the present time. A line of electric pleasure vehicles is also carried.

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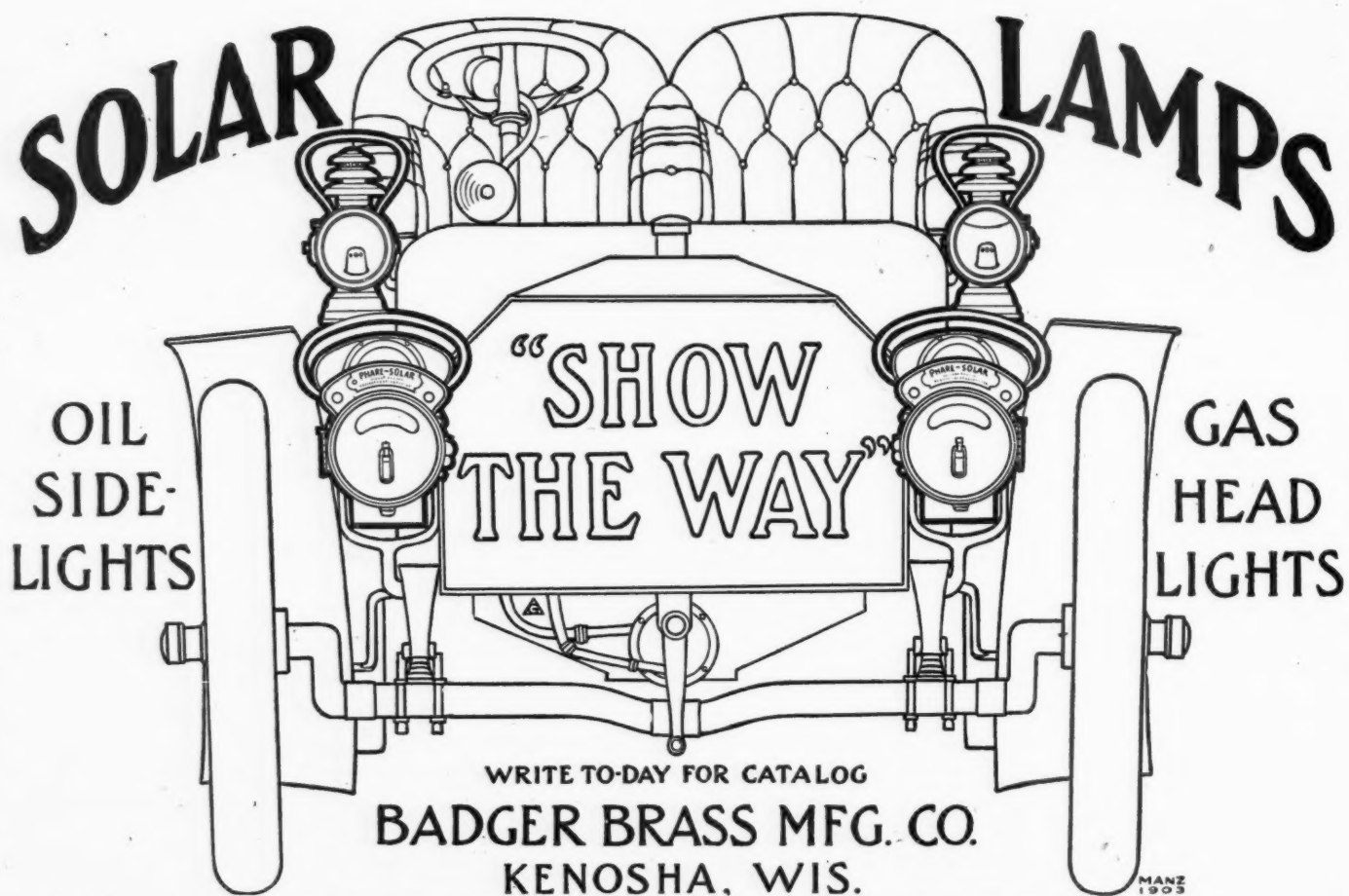
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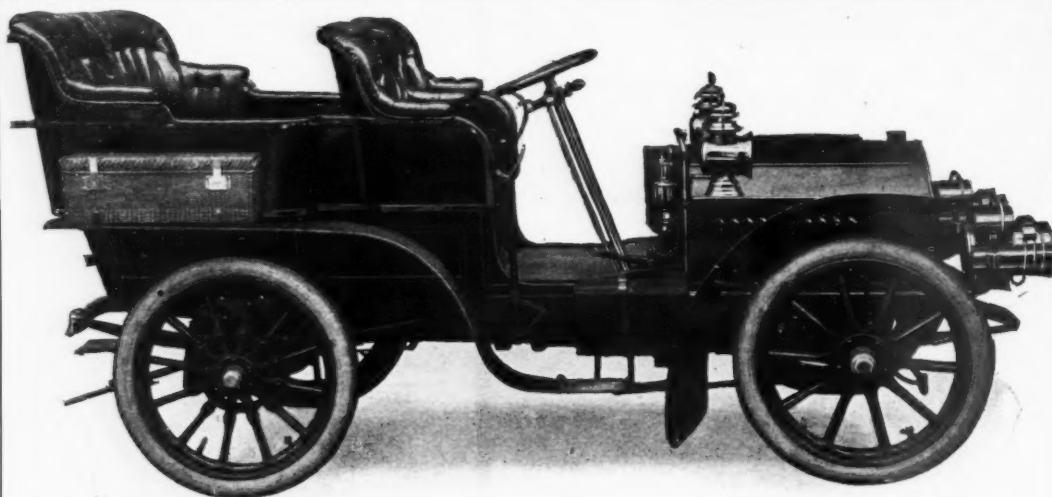
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We build many desirable models for business or pleasure.

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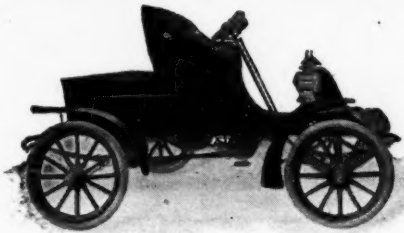
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You Need It In Your Business

The ELMORE AUTOMOBILE



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Either engine will propel carriage should the other be cut out. (A very important fact.)

Has dynamo and storage battery. Motor will start and carriage will run on either. (Another important fact.)

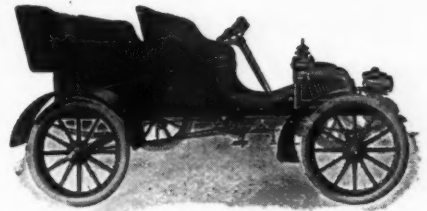
You can charge the battery from the dynamo while running the carriage, which is another important fact.

Has had a practical test of over three years' manufacture.

Two first-class certificates in New York-Boston Endurance Run. Have been used in 1000-mile tours without trouble. And still more important facts.

Doctors' and Business Men's favorite car, Model 7, \$800

Tonneau Touring Car, Model 8, \$1400



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Member of National Association
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TO obtain a pneumatic tire that will be a real comfort to you as far as ease, durability and general satisfaction is concerned get the

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IT has become the favorite simply because it has the merit that brings prestige. Arguments against them are unavailing to those who have had experience with

G.&J. TIRES

If you have trouble with your tires or are not entirely pleased with their service, it is quite certain that you are not using

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Our Gasoline Cars

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Easily the best car built in America

Some Appealing Features:

Lubrication is automatic, being started or stopped as the spark is switched on or off; governor acts on the mixture and times spark automatically; valves removable and replacable easier and quicker than on any other gasoline car; the spark plugs won't short-circuit and are connected to cables by chains instead of the usual ever-snapping wires; throttle on steering wheel permits of speeds from six to forty miles per hour on high speed gear—this feature alone places our car far in advance of others, and makes the motor as flexible and easily controlled as a steam motor.

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THE *Locomobile* COMPANY OF AMERICA, General Offices and Factory, BRIDGEPORT, CONN.

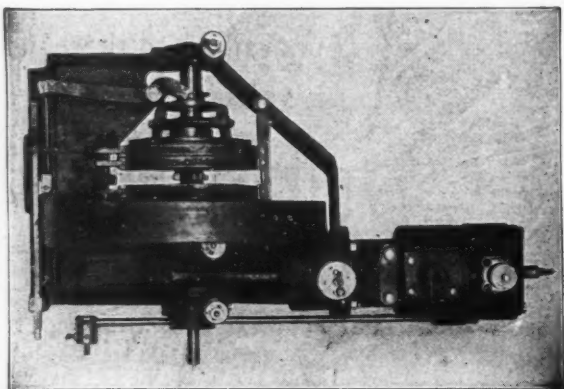
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SUITABLE FOR 1000 POUND VEHICLES.



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The highest quality throughout.
Large bearings in every wearing part.
Every part in No. 1 Motor easy of access.
Cylinder 4½x6 inches.

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We sell the MONARCH Car—\$750.00; MORLOCK Runabout—\$650.00. SEE THEM!

P. J. DASEY COMPANY,

GET OUR 1903
CATALOGUE.

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Our Steam Cars ...for 1903

are the result of over four years manufacture, in which time we have made and sold five thousand vehicles. The Locomobile steam car is comfortable and convenient and has won many prizes for speed, reliability and hill climbing in all parts of the world. A customer writes: "I am the owner of one of your earliest steam machines, No. 7, (built in 1899) which still gives good satisfaction."

Prices from

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The Stanhope B herein illustrated is only one of many sensible and handsome styles.



Conveniences—Special Features: Indestructible water gauge; Victor steam air pump, obviating all hand pumping and very useful for inflating tires; Victor steam water pump, a reliable auxiliary boiler feed; ejector for convenience in touring; thorough lubrication of engine from one central oil reservoir; positive automatic oil pump for cylinders; forced draught for use in windy weather; superheated steam; solid and substantial construction; fine workmanship and handsome finish throughout.

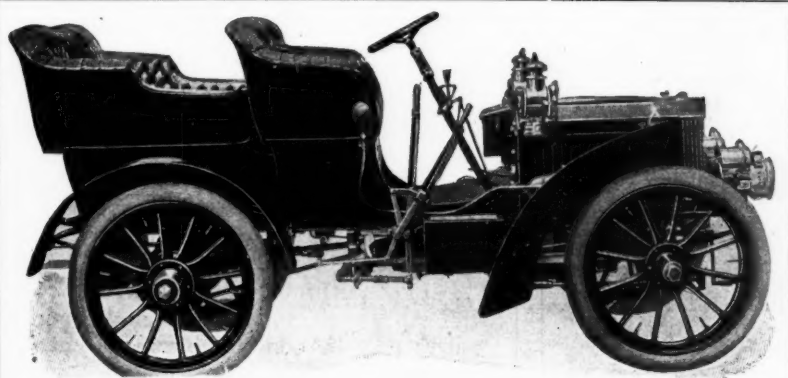
Write for Catalogue or visit any branch office for demonstration on the road.

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WINNERS EVERYWHERE.**

THE PEERLESS is one of three cars chosen to represent America in the Gordon-Bennett Race. THE PEERLESS won first and second places in the Boston Hill Climbing Contest. THE PEERLESS is winning first place in popularity every day. Send for catalogue.

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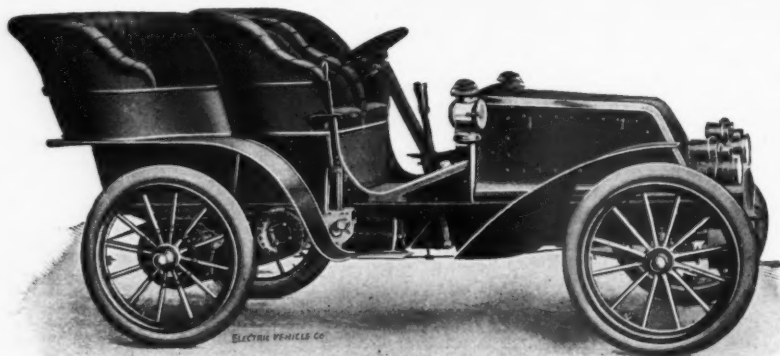
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Automobiles

COMPRISE THE ONLY
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ELECTRIC AND GASO-
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ALL REQUIREMENTS
OF PLEASURE, GENER-
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24 H. P. COLUMBIA GASOLINE TOURING CAR.

The dealer who handles Columbias is in a position to meet all demands. We have advantageous opportunities for the right men in unassigned territory. Write for catalogue, terms and general information

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"The Wheel That's True."

STILL ANOTHER STRAW

Which shows which way the automobile wheel wind is blowing, was when the largest manufacturers of automobiles in the U. S. recently acceded to the request of their agents and gave them a choice of wheels. From Maine to California came the cry "GIVE US MIDGLEY TUBULAR STEEL WHEELS."

Do not put your trust in inferior or in cheap wheels, for your automobile pleasures may be considerably marred by so doing.

The hall market of strength, likeness, beauty and reliability is found in Midgley Tubular Steel Wheels.

The Midgley Mfg. Comp'y
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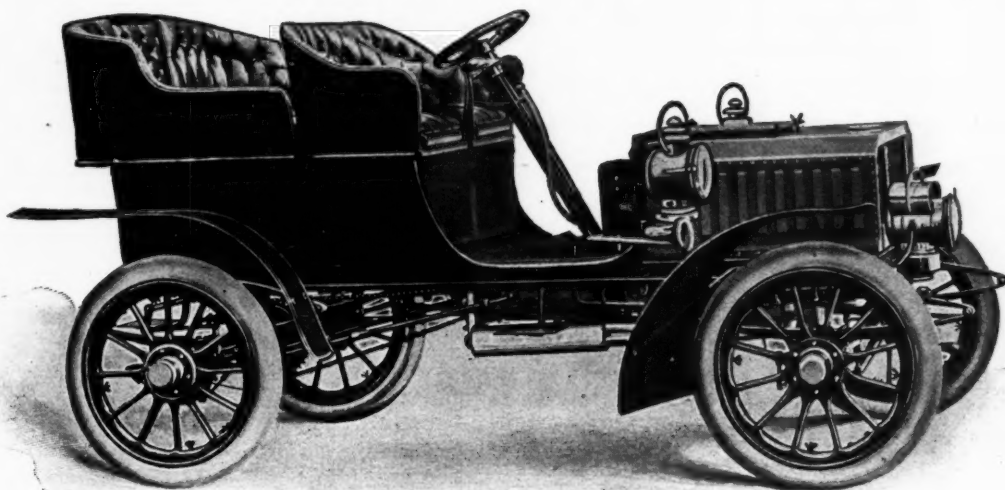
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EXPERIENCE COUNTS AND WE HAVE HAD FIVE YEARS OF IT.



Double Cylinder Vertical Motor,
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Speeds and Reverse.

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Our touring car is unsurpassed in
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Prompt deliveries.

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The CONRAD 8 H. P. Gasolene
Runabout is the only one made in
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sliding gear transmission, which
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Price \$750.00.

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Make Things Hot

The 1903 Burner

KELLY BURNERS
Never Back Fire

has been tested on many rigs and NOT ONE has come back.

THERE IS THE

Kelly Burner.

That tube is continuous, of
steel. The tube below connects
with each coil, giving an even
distribution of gas.



That casing has no gauze or
holes in the bottom.

Air is taken at ends, pre-
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of flame.

No back-firing even if the
burner is red hot.

The generator is clean, quick, simple, strong. No smoke or flaring.
No drip cup needed. Encased in aluminum. Wintry blasts have
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KELLY BURNERS
Give Satisfaction

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KELLY BURNERS
In All Sizes.

From the days of Achilles circling the walls of ancient Troy in his war chariot to the Automobilist of the present time in his racing car is a big stride, yet the fate of this ancient warrior suggests the inquiry—**ARE THE TIRES ON YOUR AUTOMOBILE INVULNERABLE?** Remember this is the part of your outfit that is exposed to constant danger of mishap, and moderately good tires are not good enough to escape the perils that await their use. **There are no weak spots in the**

GOODRICH CLINCHER AUTOMOBILE TIRE

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Simplex Flash Boiler



The Best Boiler
Ever Invented.

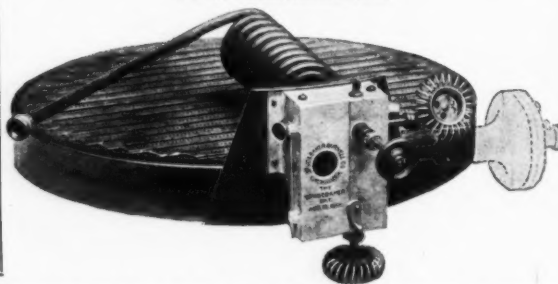
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if you have Boiler
or Burner trouble.



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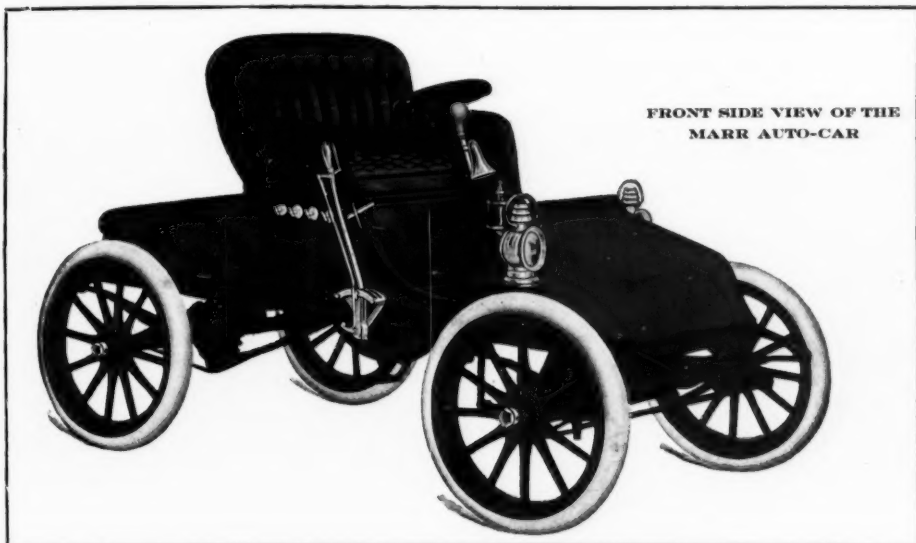
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THE MARR AUTO-CAR

AMERICA'S BEST

**WONDERFULLY SIMPLE
EXCEEDINGLY DURABLE**

**ABSOLUTELY RELIABLE
PERFECTLY CONTROLLABLE**



FRONT SIDE VIEW OF THE
MARR AUTO-CAR

A vehicle suitable for use by drivers who have no engineering knowledge, experience or tastes for same.

Because an Automobile has been on the market for a few years—is no sign it is the best.

THE MARR AUTO-CAR

Is up-to-date with all known improvements and is conceded to be more than two years in advance of all others.

**PRACTICALLY NOISELESS AND
ODORLESS**

**STARTING, STOPPING, REVERSE AND ALL CHANGES OF SPEED
ACCOMPLISHED BY ONE LEVER AT RIGHT OF SEAT**

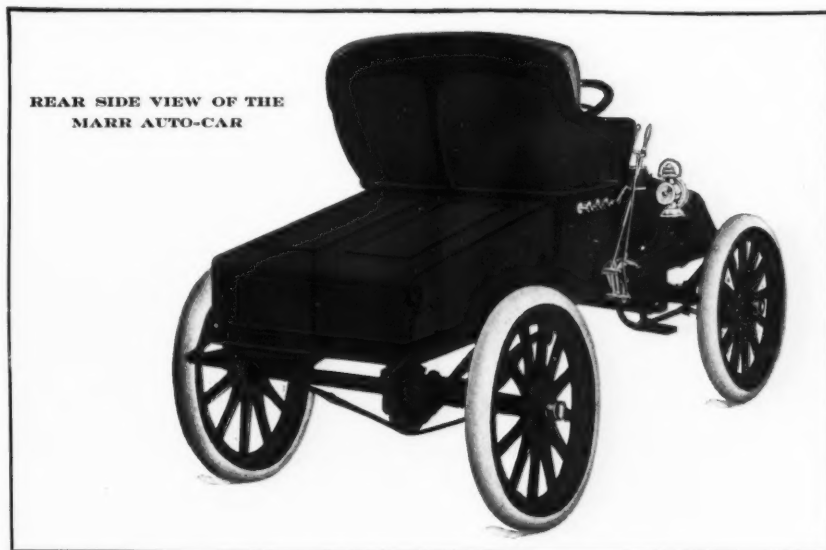
Any man, woman or child can drive and operate it easily without becoming confused.

Attracted the most favorable comments of any vehicle of its kind at the Chicago Show for its handsome appearance, novel features and fine workmanship.

A cheap Automobile proves a dear bargain in the end. It costs more in repairs and renewals in one year than a good machine will in five years.

THE MARR AUTO-CAR

IS BUILT TO ENDURE AND IT ENDURES



REAR SIDE VIEW OF THE
MARR AUTO-CAR

WILL CLIMB ANY HILL—ON ANY ROAD—IN ANY WEATHER

Its simplicity enables any person to at once become acquainted with its mechanism without resorting to professional aid.

Ideal Winter
and
Summer **Machine**

**Price Complete, with Fenders,
Lamps, Rubber Foot
Mat and Tools**

\$800

FOR OTHER INFORMATION AND PARTICULARS SEE THE FOLLOWING PAGE

THE MARR AUTO-CAR CO.

DETROIT, MICHIGAN

THE MARR AUTO-CAR

THE MARR AUTO-CAR is a new factor in the automobile world, at once taking high rank as the embodiment of comfort, convenience, strength, speed and practical mechanism. It was designed by Mr. W. L. Marr, an experienced, practical mechanical expert, among the first auto builders of America, having designed and built the models of several of the most successful automobiles on the market to-day; and in the Marr Auto-Car is embraced the successful results of previous designing and construction, combining those very essential features proven by practical experience to be the necessity of the satisfactory automobile.

Because of the fact that in the making of automobiles lies the greatest manufacturing industry in the United States, and that gasoline is the only successful motor power—because it possesses the greatest number of advantages and the least number of disadvantages—Mr. Marr has given over four years of his time in testing and perfecting the Marr Auto-Car, which, after the most severe trials, has proven the best among all competitors in the auto line. The favorite criticism of competition is that it will be impossible to manufacture a machine like the Marr Auto-Car, upon such fine design and with such splendid workmanship in every particular, to sell at a price that will meet the popular demand. However, our experience is that the prospective buyer is not looking for cheapness, but rather for the BEST, which is always cheapest in the end.

POTENT FACTS

The car is the "reachless" pattern with a channel steel running gear, mounted on four semi-elliptical springs.

Has a single cylinder engine, $4\frac{3}{4}$ -inch bore by 6-inch stroke, giving ample $6\frac{1}{2}$ horse power, which will carry it over all kinds of roads at a speed of from 4 to 30 miles per hour at the will of the driver, and consistent with the condition of the roads.

Equipped with artillery wood wheels and 3 x 28-inch diamond tires, unless otherwise ordered.

Steering is done by an adjustable wheel, which moves back and forth to any position desired, and when moved forward is entirely out of the way, when getting in or out of the Vehicle. Steers with wheel in any position.

Has the least number of parts and is the most simple in construction of any automobile made.

Has low centre of gravity which, with extra long wheel-base, assures comfort in travel.

All the lubrication is in sight at all times—cylinder oil cup located on dash—bearings are oiled by compression in cups, easily accessible on outside right of body.

Has extra powerful emergency band brake. $1\frac{1}{4}$ -inch rear axle.

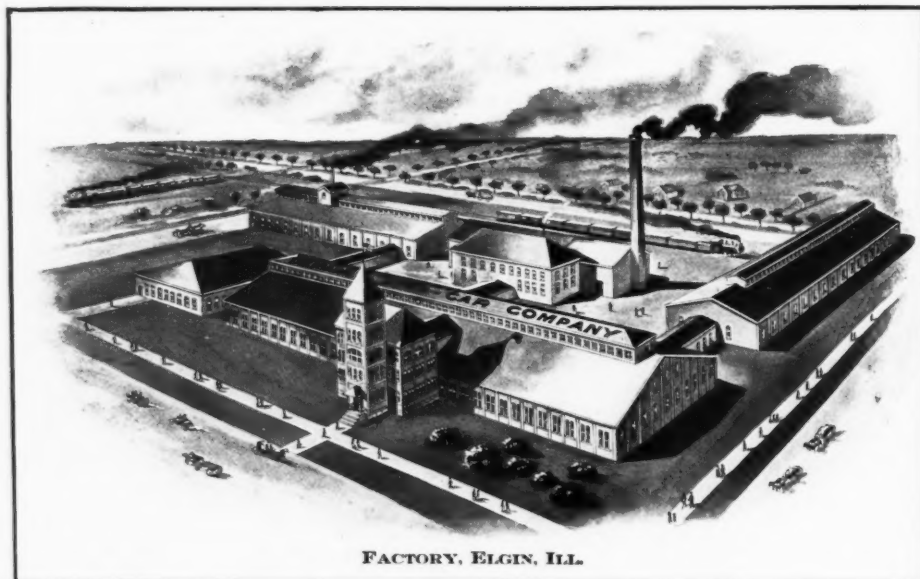
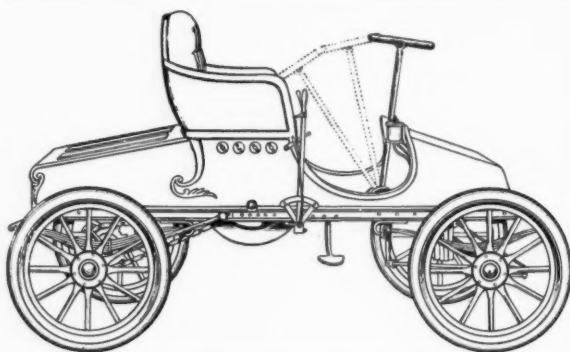
Gear pump. Water-cooling device. Tinkem roller bearings.

Planetary transmission. Float-feed carbureter. Valves mechanically operated. Always ready for action, and not affected by the various conditions of the atmosphere. Low mount, making it exceptionally easy to get in and out.

All Marr Auto-Cars are of the same design and finished alike in automobile red with chocolate trimmings.

Upholstering is the best black leather. Springs in back and seat. Equipped with an extra set of batteries.

SHOWING
STEERING
WHEEL
WHICH CAN
BE SET
FORWARD
OR BACK
IN ANY
HALF
DOZEN
POSITIONS
AS
DESIRED



FACTORY, ELGIN, ILL.

The Marr Auto-Car, complete, weighs about 1000 pounds, and with one charge of gasoline and lubrication will easily run 250 miles without any trouble or annoyance.

The Marr Auto-Car is being manufactured at Elgin, Ill., and all shipments will be f. o. b. that point.

Experience will demonstrate that those who drive the Marr Auto-Car will be strangers to the repair shops.

FOR FURTHER INFORMATION AND
TERMS ADDRESS

**THE MARR AUTO-
CAR COMPANY**

DETROIT, MICHIGAN

We Do Not

**"Put On
Any Lugs"**

THIS SAVES

**Time, Trouble, Tubes
and Language.**



BY USING THE

**Dunlop
Tires**

You will demonstrate for yourself that there is
such a thing as Genuine Tire Satisfaction.

EASY TO PUT ON.
TO TAKE OFF.
TO REPAIR.
TO RIDE.

— THE —
Hartford Rubber Works Co.
HARTFORD, CONN.



The Family Carriage

Each member of the family is pleased
with the standard runabout of the
world. Simplicity, reli-
ability, economy and adaptability are
pronounced features in

The Oldsmobile

The Best Thing on Wheels,
PRICE, \$650.

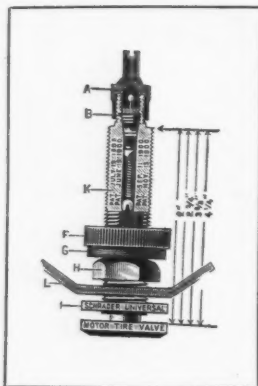
It is equally suitable for daily use in the
city or for extended touring. . . The
best automobile dealers in the leading
cities throughout the world sell it.

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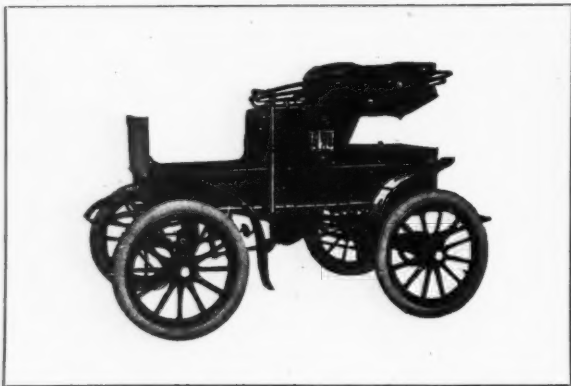
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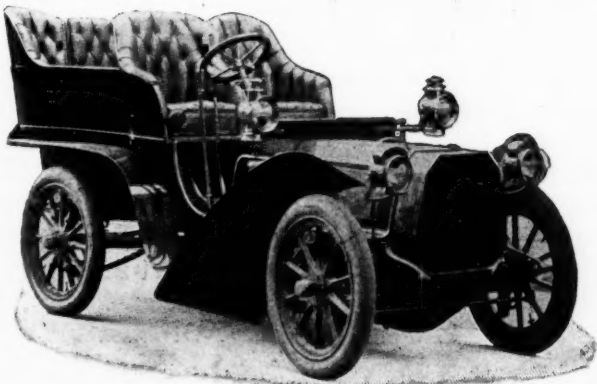
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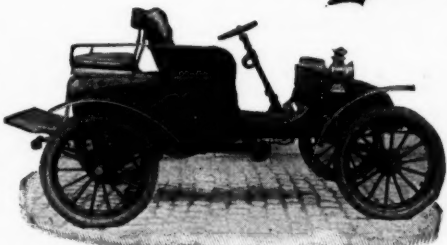
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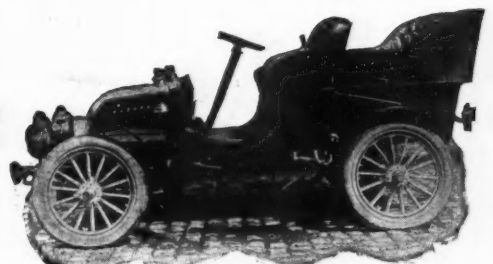
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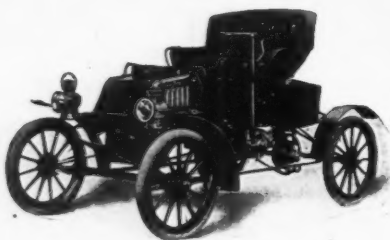
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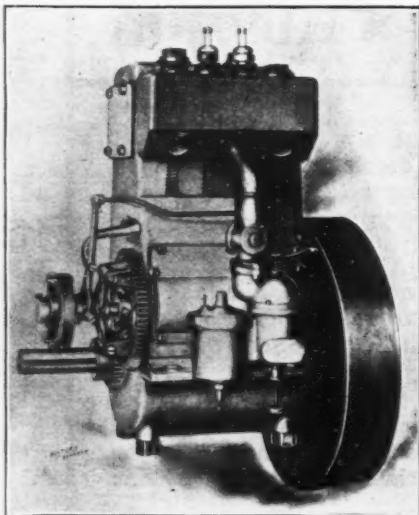
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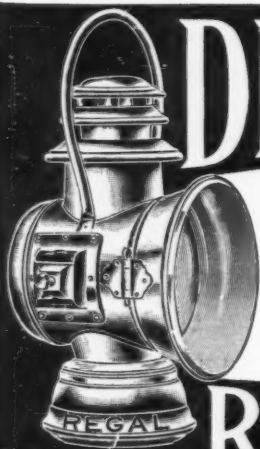
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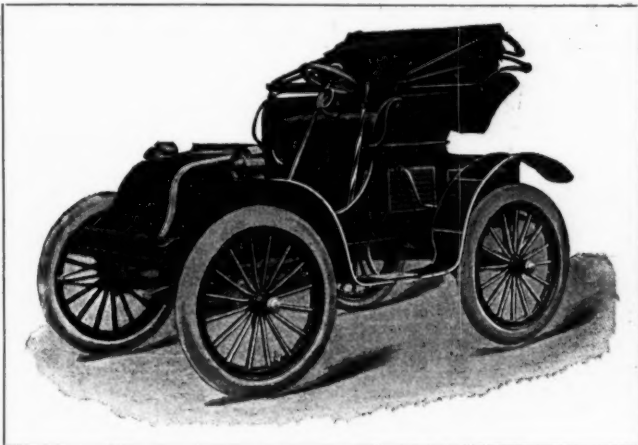
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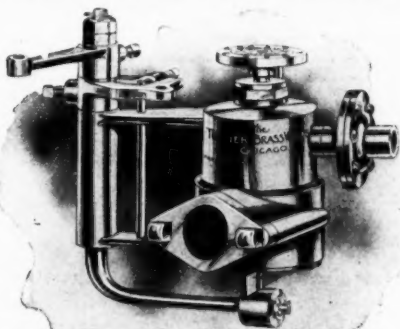
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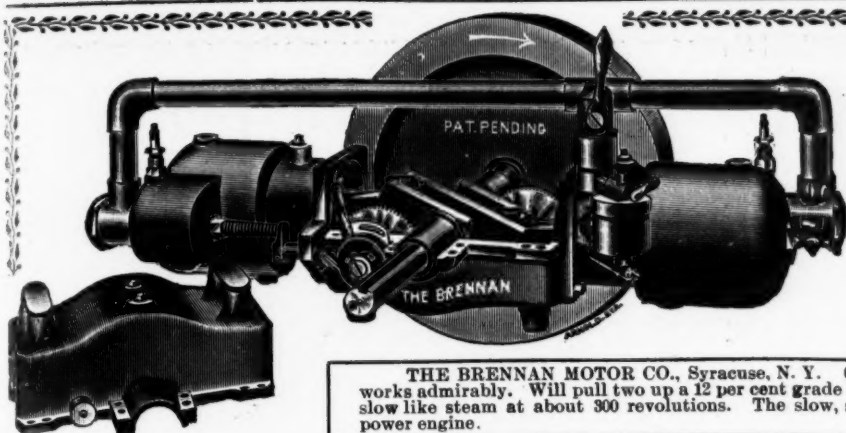
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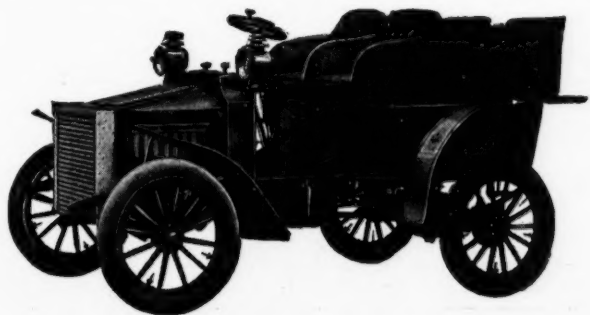
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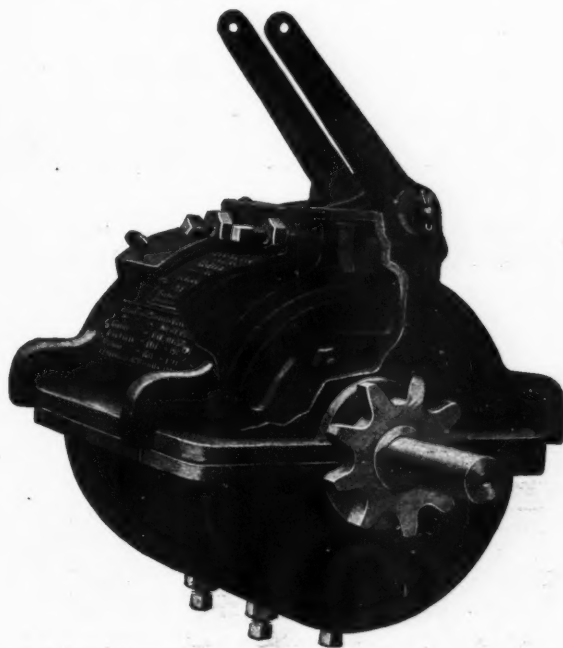
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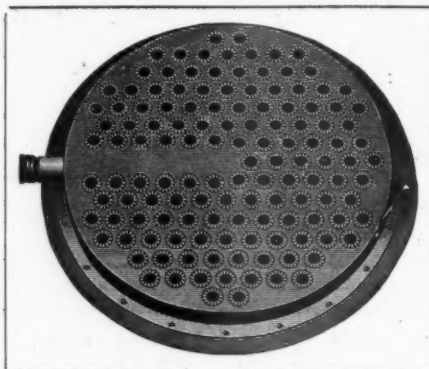
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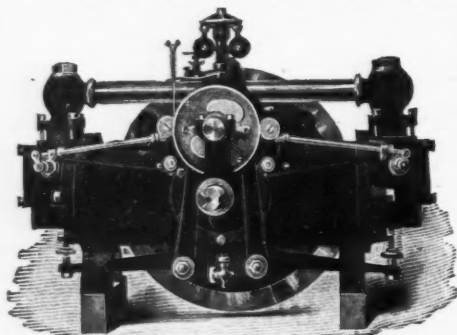


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Perfectly balanced.

Practically no vibration

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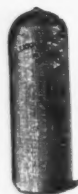
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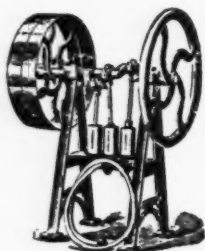
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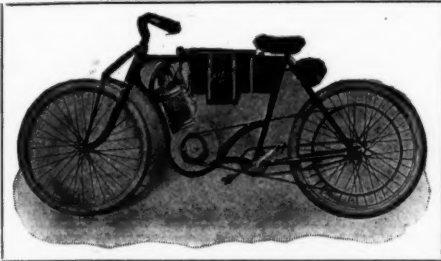
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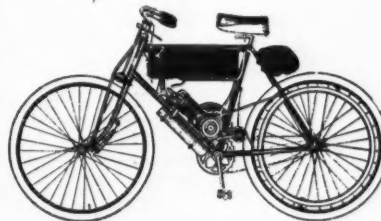
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The catalogue also tells about other equally good features found only on the



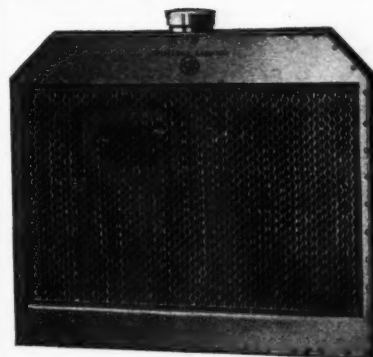
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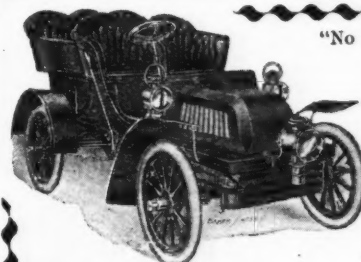


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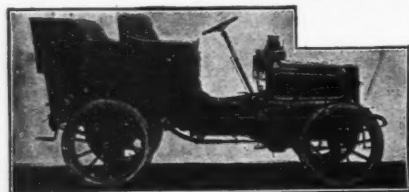
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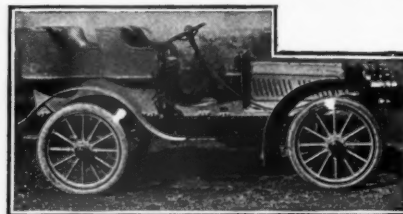
that ever traveled 1,000
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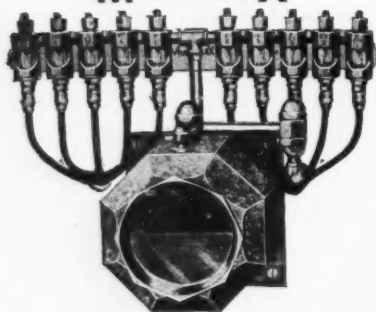
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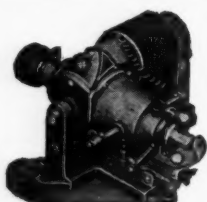
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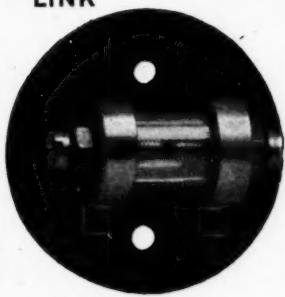
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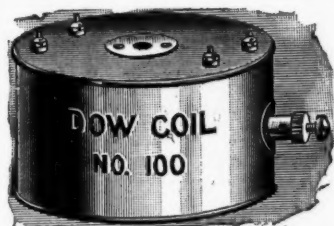
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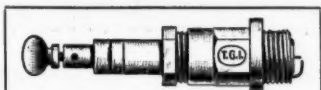


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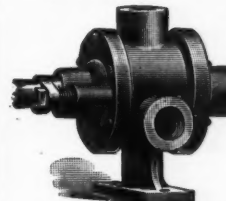
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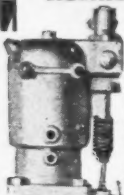
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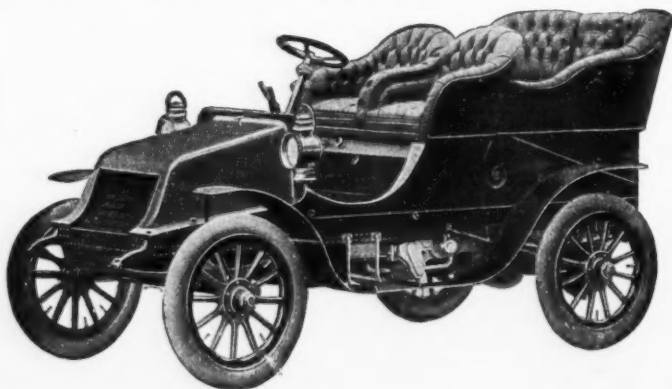
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